

Problem Solved

Essential Problem Solving
Practice For All Children

5



NATIONAL MATHS PROBLEMS



Problem Solved 5

Essential Problem Solving
Practice For All Children

The four books in this series contain challenging problems that cover all strands of the mathematics curriculum. They reflect the way mathematics is encountered in real-life situations. The problems encourage children to apply their knowledge and general numeracy skills. The ability to *work mathematically* is the key element of all books within the series. The activities presented have been chosen to enhance and enrich each student's mathematical experiences.

The problem solving activities work towards developing strategies such as:

- ✓ estimating
- ✓ modelling
- ✓ analysing
- ✓ measuring
- ✓ calculating

The content works towards achievement of the outcomes presented in the Australian Curriculum and the descriptions described in each state syllabus.

Each book has 40 units.
An answer section is included.



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Level 1

1. Our trip is 785 km long. How far do we still have to go if we have already driven 350 km?
2. A crowd of 56 465 people attended the football game. How many sat on the grass if 25 406 were in the grandstands?
3. There were 47 people on the double-decker bus when it left the city. Five got off at the 1st stop, 8 at the 2nd stop and 9 at the 3rd stop. How many people are still on the bus?



Level 2

1. Trees are planted in rows. If there are 15 rows, each with 10 trees, how many trees are there altogether?
2. Over the weekend, 1594 people attended the art show. What was Sunday's attendance if 609 attended on Saturday?
3. There are 760 seats arranged in 8 rows in the school hall. How many seats are in each row?

Level 3

1. In a normal school week, Ben travels a total of 50 km to and from school. How far from school does he live?
2. A farmer produced 10 616 litres of grape juice in January, 10 002 litres in February, 15 316 in March and 14 606 in April. How many 10 litre containers are required to store the juice?
3. A packet of drawing pins contains 100 tacks. If our class uses 50 a week, how many packets will we use in a 12-week term?
4. What was the average attendance at the tennis centre during the week if 65 people played on Monday, 59 on Tuesday, 106 on Wednesday, 115 on Thursday and 95 on Friday?

Investigation

What number am I?

1. $\boxed{?} \times 2 \bigcirc + 3 \bigcirc \div 5 \bigcirc 9$

2. $\boxed{?} \times 5 \bigcirc - 4 \bigcirc + 8 \bigcirc 79$

3. $\boxed{?} + 23 \bigcirc \times 2 \bigcirc - 9 \bigcirc 83$

4. $\boxed{?} - 1 \bigcirc - 6 \bigcirc \times 7 \bigcirc 91$

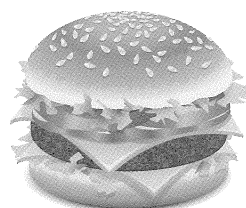
5. $\boxed{?} \times 11 \bigcirc \times 3 \bigcirc + 6 \bigcirc 105$

Level 1

1. How much has Finn saved if he has deposited these amounts in his bank account so far: \$178, \$89, \$206 and \$367?
2. What is my change from \$50 after buying soap for \$4.95, shampoo for \$12.45 and baby oil for \$8.70?
3. The restaurant bill of \$364 was shared evenly among 4 people. How much did each person pay?

Level 2

1. Hamburgers are \$4.20, with egg they are an extra 70c. How much would 3 hamburgers cost if one had egg?
2. Alice spent \$9.15 on bus and train fares to the city. How much was the bus fare if the train fare was \$5.40?
3. How much did the teacher collect for the excursion if each of the 25 children paid \$4.50?



Level 3

1. What would be the value of 1 kilogram of gold if 100 grams is valued at \$4999?
2. Five girls decided to make a dress each. Each bought 3 metres of material at \$8.99 per metre. How much did they spend altogether?
3. What would be the weekly wage bill at the shop? The manager gets \$410.80, the 2 hairdressers \$360 each and the apprentice \$189.20.

Investigation

Grapes \$1.05/kg	Oranges 25c each	Zucchini \$1.10/kg	Carrots \$0.80/kg
Bananas \$0.96/kg	Potatoes \$0.75/kg	Apples 10 for \$1.20	Tomatoes \$0.95/kg

Calculate each person's bill and the amount of change they will receive.

Andrea	\$	Billy	\$	Celina	\$
bananas 1.5 kg		oranges 19		grapes 4.4 kg	
grapes 2 kg		apples 15		zucchini 600 g	
carrots 3.5 kg		tomatoes 3.4 kg		bananas 3 kg	
tomatoes 4.2 kg		potatoes 3.2 kg		carrots 4.1 kg	
Total		Total		Total	
Rounded		Rounded		Rounded	
Tendered	\$20	Tendered	\$15	Tendered	\$50
Change		Change		Change	

Level 1

1. Brad had \$8. He kept a quarter and spent the rest. How much did he keep?
2. Alice rides 10 km to school. She takes $\frac{1}{5}$ off the trip using a short cut. How many kilometres does the short cut take off?
3. A piece of timber 6 metres long was cut into thirds. What was the length of each piece?



Level 2

1. What was Lee's score out of 100 if she got $\frac{4}{5}$ of her words correct?
2. Anthony is sharing 54 marbles with his brother Henry. How many marbles will Anthony get if he is getting $\frac{2}{3}$ of the bunch?
3. Zoe had 12 metres of material and used $\frac{5}{6}$ of it. How much is left over?

Level 3

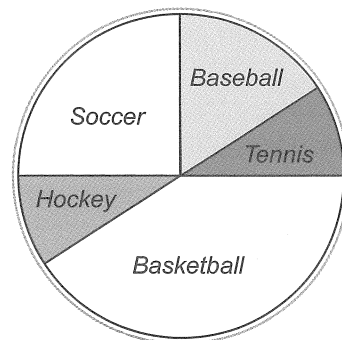
1. Jacqui's record on her computer game is 412. If she improved her score by half again what is her new record?
2. Our school organised a Talent Quest. \$680 was collected on the night. Three tenths was used to pay expenses. What amount was profit?
3. At the athletics carnival, the senior children had to run 1000 metres. The juniors only had to run $\frac{3}{5}$ of that distance. How long was the junior race?
4. On a map, every 5 cm represented 250 kilometres. What distance would be represented by a 3 cm line?

Investigation

144 children chose a sport for the term.
12 people chose tennis.
Tennis represented $\frac{1}{12}$ of the total.

Choose the best estimate for each of the other sports.

Sport	Participants				
Baseball	12	24	36	60	72
Basketball	12	24	36	60	72
Hockey	12	24	36	60	72
Soccer	12	24	36	60	72

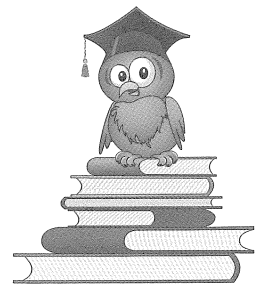


Level 1

1. Davis has 5 pieces of rope, each 1.4 metres long. If he joins them to become one long piece, how long will it be?
2. At the school long jump, Jasper jumped 4.4 m and Max jumped 3.9 m. How much further did Jasper jump than Max?
3. A carpenter requires lengths of timber 1.4 m, 1.3 m, 4.5 m and 0.6 m. What is the total length of the timber he needs?

Level 2

1. A stack of books weighs 2.7 kg. How much would 10 similar stacks weigh altogether?
2. James weighed 54.5 kg. His weight increased by 4.4 kg over the holidays. How much does he weigh now?
3. A length of timber measures 4.2 metres. It is cut into halves. What is the length of each half?



Level 3

1. This time last year, I measured 112.6 cm. Since then I have grown 8.7 cm. What is my present height?
2. A car travels 8.9 km per litre of petrol. How far will it travel on 10 litres?
3. Oliver has 4.5 metres of rope. How many 50 cm pieces can he cut from the original piece?
4. The length of my step is 0.9 metres. What distance will I travel if I take 5 steps?

Investigation

Alice has recorded the mass in grams of Australian coins on the chart.

Coin	5c	10c	20c	50c	\$1	\$2
Mass	2.83 g	5.65 g	11.30 g	15.55 g	9.00 g	6.60 g

What would be the mass of these sets of coins?

1. 5c and 10c and 20c
2. 20c and 50c and \$1
3. 50c and \$1 and \$2

Decide whether these statements are true or false.

4. Three 20c coins equals 33.90 grams
5. Five \$1 coins equals 54 grams
6. Two 50c coins equals 31.10 grams

Level 1

1. What was Joanne's score out of 100 if her mark for the test was 80%?
2. What percentage of the material was not used if Jason only used 70% of it?
3. In the survey of 40 people, 10% voted for 'strawberry' as their favourite flavour. How many voted for strawberry?



Level 2

1. How many children went to the swimming carnival if 25% of the 60 children in Year 4 attended?
2. How much did Mark pay for the TV if it had a marked price of \$400, but he was given a 50% discount?
3. Tim's picture was 20 centimetres wide. How wide was it after he trimmed 10% off the left side?

Level 3

1. Ava made a model using red, blue and white blocks. If 25% are white and 40% are blue, what percentage of her model is red?
2. What was the value of the discount if it was equal to 20% of the marked price of \$1000?
3. Who got the highest score if Jackson got $\frac{3}{4}$ of the questions right and Lily was given a score of 70%?
4. How many faulty lights are there if 25% of the 20 lights are broken?

Investigation



How much did Flynn pay for his new bike?

- The marked price is \$500 without GST.
- He received a discount of 20%.
- He then paid 10% GST on the discounted price.

Level 1

1. The shoe sizes on the top shelf were $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5 and $5\frac{1}{2}$. What would be the sizes of the next three pairs of shoes?
2. Nanna gave each of the 5 children an envelope containing money. What was each share if the total amount she gave away was \$45?
3. When Felix divided the bag of coffee beans into 6 kg bags, he ended up with 8 bags. How much was there to start with?

Level 2

1. Liam and Stacey have a job picking berries. Liam is paid \$4 for every bucketful. If he was paid \$48, how many bucketfuls did he collect?
2. What number am I thinking of? "I am a 2-digit number. If you double me and subtract 8, the answer is 16."
3. My car can travel 8 km per litre of fuel. Estimate the amount of fuel I used travelling 200 km down the coast.

**Level 3**

1. For every 2 chocolate ice-creams sold, 4 vanilla ones were sold. If 24 ice-creams were sold, how many were chocolate?
2. For every two cups of tea sold at the shop, 5 cups of coffee were sold. How many coffees were sold if 35 hot drinks were sold?
3. Water began leaking from the tap at a rate of 30 mL per hour for 3 hours and then it increased to 50 mL per hour until it was fixed. How much water leaked from the tap between 8 am and 2 pm?
4. Brad planted a tree 5 years ago. It was only 30 cm tall when he planted it. It grew 0.5 metres each year. How tall is it now?

Investigation

At the end of the race, each of the 10 runners shook hands with every other runner.

How many hand shakes took place?



Unit 7

Length and Perimeter

Level 1

1. Adelaide's step is 55 cm. What distance will she cover if she takes 10 steps?
2. Anne is 104 cm tall. Her sister Kate is 96 cm. How much taller is Anne?
3. A carpenter has a length of timber 860 cm long. If he cuts it in half, what will be the length of each piece?



Level 2

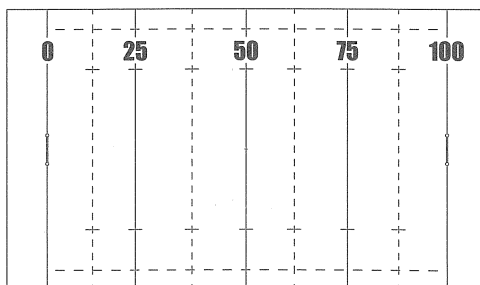
1. Cooper drove 38 km on his 1st trip, 49 km on his 2nd trip, 42 km on his 3rd and 63 km on his final trip. How far did he travel altogether?
2. What is the average height of the 3 boys if Jude is 154 cm tall, Tom is 149 cm and Max is 147 cm?
3. James travels a total distance of 240 km to and from work over 5 days. Estimate how far James lives from his work.

Level 3

1. Riley's step is 87 cm and Violet's step is 76 cm. How far apart will they be after 20 steps?
2. How many kilometres does Gabby swim each week if she swims 60 laps of the 50 m pool every day?
3. What is the perimeter of a court 29 metres long and 16 metres wide?
4. What is the length of the school basketball court if its perimeter is 120 metres and its width is 20 metres?

Investigation

Name 3 different sets of sprints Tom's footy team could do that equal 500 metres.

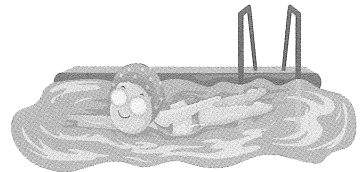


Level 1

1. What would be the area of a square with sides of 9 metres?
2. Charlie and Luke drew their own handball court in the playground. How much space did it take up if it was 9 m long and 5 m wide?
3. How many 1 m^2 blocks are needed to pave an area 7 metres long and 5 metres wide?

Level 2

1. Ben's backyard is 108 m^2 . What is its length if it is 9 metres wide?
2. Tiles are \$10 a square metre. How much will it cost to tile an area which is 9 metres by 6 metres?
3. What is the area of Ruby's pool if its length is 10 m and its width is 6.3 m?

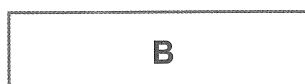
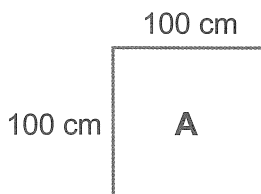


Level 3

1. If the area of a square park is 2500 m^2 , what is the length of the southern side?
2. The school playground, which measures 30 m by 20 m, was cut in half. What is the area of each half?
3. One can of paint is enough to cover 20 m^2 . How many cans will Michael need to cover an area 8 metres by 5 metres?
4. How much space does Kim need for her two photographs which are 9 centimetres by 5 centimetres each?

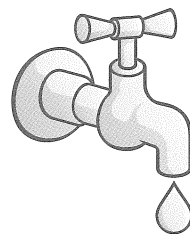
Investigation

Diagrams A, B and C are drawn to scale. They each represent 1 m^2 . Estimate the length and width of shapes B and C. Give another set of dimensions that would be 1 m^2 .



Level 1

1. Elise is filling 5 litre containers with detergent. How many containers can she fill using a drum containing 45 litres?
2. Oliver's tap is leaking at a rate of 25 mL per hour. How much water will he waste in six hours if it isn't fixed?
3. How many cubic centimetres of space will Lucy's model occupy if it is 6 cm long, 3 cm wide and 2 cm high?

**Level 2**

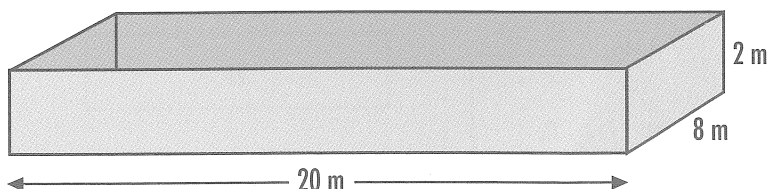
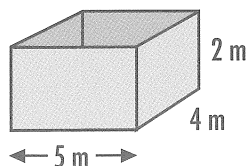
1. What is the capacity of a container which is 3 metres long, 2 metres wide and 5 metres high?
2. How many cubic metres of soil and rock have to be dug out to build a pool 9 metres long, 5 metres wide and 2 metres deep?
3. What is the volume of a cupboard 2 metres long, 1 metre high and $\frac{1}{2}$ a metre deep?

Level 3

1. Adam's model is 6 cm long, 4 cm wide and 3 cm high. Tina's model is 7 cm long, 5 cm wide and 2 cm high. Whose model is larger?
2. Every day we order 1.5 L of milk. How much do we use each week?
3. Jack built a model with a volume of 60 cm^3 . How tall was his model if the area of the base was 12 cm^2 ?
4. Amelia takes 25 mL of medicine every 4 hours. How much will she take between 8 am and 4:15 pm?

Investigation

How many small boxes will fit in the crate?

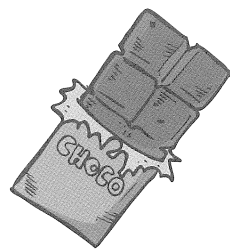


Level 1

1. A packet of biscuits weighs 250 grams. Estimate the mass of 4 packets.
2. A bunch of 8 bananas weighs 880 grams. Estimate the approximate mass of each banana.
3. Tom wanted to weigh his dog. First he weighed himself. His mass was 79 kg. Then he stood on the scales while holding the dog. The scales recorded 108 kg. How much did the dog weigh?

Level 2

1. The 300 gram chocolate bar has 10 equal pieces. Estimate the mass of each of the 10 pieces.
2. Jack packs potatoes into bags at the fruit shop. How many 5 kg packs will he fill from a $\frac{1}{2}$ tonne load?
3. A packet of washing powder weighs 1 kg. If I use 50 grams each wash, how many washes do I get out of the pack?

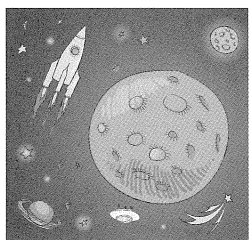


Level 3

1. A fish and chip shop uses 40 kg of potatoes per day. How many kilograms would they use in two weeks?
2. A kilogram of grapes was shared evenly among 8 children. How many grams did each person receive?
3. What is the combined mass of the four girls in the elevator if their individual masses are 26 kg, 28 kg, 32 kg and 25 kg?
4. Steve's mass was 35 kilograms 250 grams. What is his current weight if he has increased by 700 grams?

Investigation

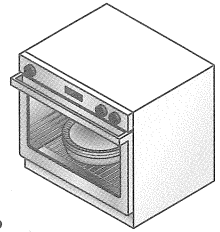
If you were to land on the moon, your weight would only be $\frac{1}{6}$ of what it is on Earth.



1. What would be the weight of a 42 kg girl if she was on the moon?
2. What would be the mass of a 78 kg astronaut if he was on the moon?
3. An astronaut's spacesuit weighs about 14 kg on the moon. What would its weight be on Earth?

Level 1

1. The highest temperature ever recorded in our town was 41°C and the lowest 32°C less. What was the lowest temperature?
2. Pete is waiting for the oven to reach 200°C . Currently it is 115°C . How much more does the temperature have to rise?
3. The range of temperatures on the air conditioner is 18°C to 32°C . What temperature is midway between the high and low?



Level 2

1. At 9 am the temperature was 26.3°C . What was the temperature at noon if it rose by 3.4°C ?
2. Mitchell had a temperature of 38.2°C . If the doctor said it should be 36.9°C , how much above normal was his temperature?
3. Sunday's temperature was 8.8°C cooler than Saturday's temperature of 35.6°C . What was the actual temperature on Sunday?

Level 3

1. Jana's temperature rose 1.5°C to 38.3°C . What was her temperature previously?
2. Perth's temperature suddenly fell from 42.1°C to 23.7°C . By how many degrees did it fall?
3. The temperature inside the kettle was 74.5°C . By how many degrees does it have to rise before it reaches boiling point of 100°C ?
4. The temperature at 11 o'clock from Monday to Friday was 21°C , 27°C , 31°C , 24°C and 22°C . What was the average temperature at this time?

Investigation

Sydney Temperature : Average Maximum and Minimum Temperatures ($^{\circ}\text{C}$)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	25.8	25.7	24.7	22.4	19.3	16.9	16.2	17.7	19.9	22	23.6	25.1
Min	18.6	18.7	17.5	14.7	11.5	9.2	8	8.9	11	13.5	15.5	17.5

True or False

1. The difference between the maximum and minimum in January is 7.2°C .

T	F
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2. January has the highest maximum and minimum temperatures.

T	F
---	---
3. July has the lowest maximum and minimum temperatures.

T	F
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4. The difference between the lowest and the highest temperature is 18.7°C .

T	F
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5. The difference between the maximum and minimum in September is 8.9°C .

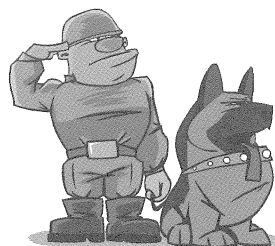
T	F
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Level 1

1. Craig spends 20 minutes each night of a school week on his homework. How many hours and minutes does this amount to?
2. A long distance runner ran twenty laps of the oval. Each lap took four minutes. How long was his training session?
3. Mr and Mrs Jackson spent 35 days touring Asia. How many weeks were they away?

Level 2

1. Sienna usually goes to bed at 9:00 pm and rises at 7:00 am. How many hours does she sleep for?
2. In a factory, a machine ran for 147 days without any fault. How many weeks is this?
3. A soldier was on duty from 2:00 am to 7:30 am. How long was he on duty?



Level 3

1. If an express train travelled 480 km in 4 hours, what was its average speed per hour?
2. A racing driver completed each lap in 1 minute 10 seconds. How long would it take him to complete 3 laps?
3. A plane averages 516 km per hour. How far would it travel in 6 hours?
4. Alex's destination was 500 km away. So far he has driven for 7 hours at an average speed of 63 km/h. How far does he still have to go?

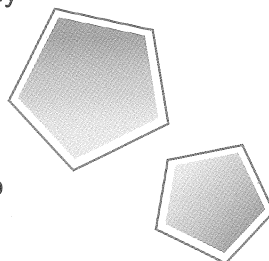
Investigation

Ryan and Trent fly to Brisbane regularly. Ryan flies in every fifth day and Trent every sixth day. If both are there today, March 24, name the dates they will meet again in the next three months.

	March	April	May	June
Sun	1 8 15 22 29	5 12 19 26	31 3 10 17 24	7 14 21 28
Mon	2 9 16 23 30	6 13 20 27	4 11 18 25	1 8 15 22 29
Tue	3 10 17 24 31	7 14 21 28	5 12 19 26	2 9 16 23 30
Wed	4 11 18 25	1 8 15 22 29	6 13 20 27	3 10 17 24
Thu	5 12 19 26	2 9 16 23 30	7 14 21 28	4 11 18 25
Fri	6 13 20 27	3 10 17 24	1 8 15 22 29	5 12 19 26
Sat	7 14 21 28	4 11 18 25	2 9 16 23 30	6 13 20 27

Level 1

1. Each pentagon Henry made used 5 matches. How many matches will he need to make 12 pentagons?
2. How many pentagons are in Flynn's sequence of pentagons if he used 45 matches?
3. What is the size of the third angle of a triangle if the two Tyson has measured already are 70° and 30° ?



Level 2

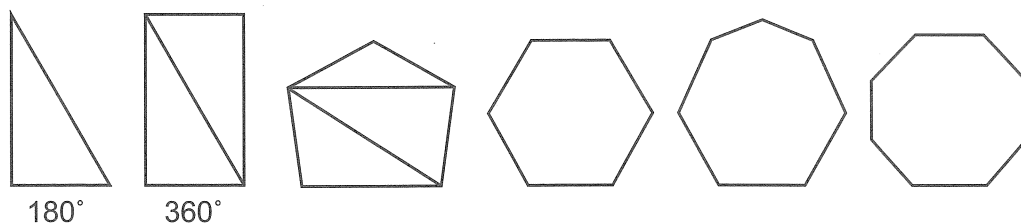
1. Lara's hexagons each needed 6 matchsticks. How many matches would she need to make 15 hexagons?
2. How many complete hexagons are in Victoria's sequence of hexagons if she used 60 matches?
3. What is the size of the third angle of a triangle if the two Amelia has measured already are 67° and 43° ?

Level 3

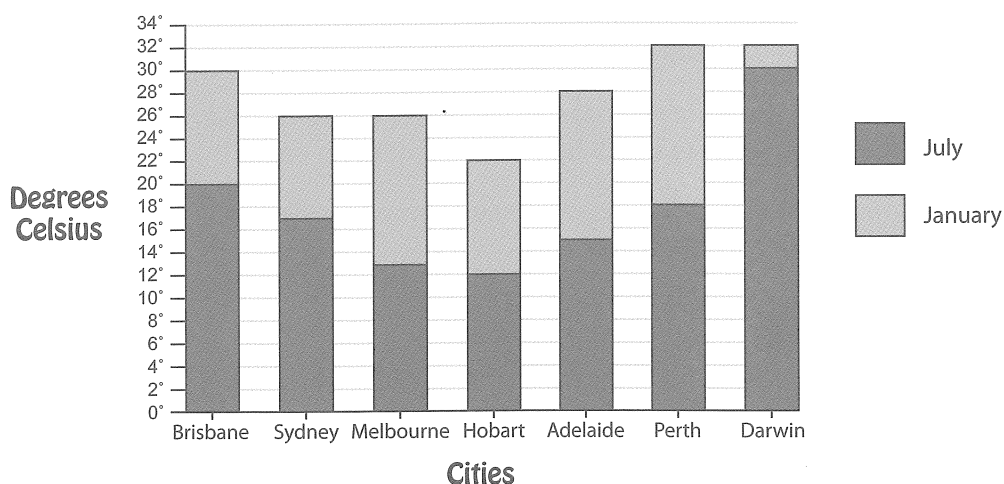
1. Jonathon's nonagons each needed 9 matches. How many matches would he need to make a sequence of 13 nonagons?
2. How many complete octagons are in Thalia's sequence of octagons if she used 108 matches?
3. Tom drew a right angle and then cut it in half. What size are the angles he created?
4. What acute angle is formed by the hands of a clock at "10 past 3"?

Investigation

A triangle has 180° . Max discovered that a rectangle can be divided into two triangles to give a total of 360° . Test his discovery on these polygons to see how many degrees are in each shape. The triangles can not overlap.



Mean Temperatures for July and January



Level 1

1. How much warmer is it in Darwin than Hobart in January?
2. How much warmer is it in Darwin than Hobart in July?
3. What is the difference between the highest temperature and the lowest temperature?

Level 2

1. What's the difference between Hobart's temperatures in July and January?
2. Which city has the greatest temperature range and how much is it?
3. Which city has the smallest temperature range and how much is it?

Level 3

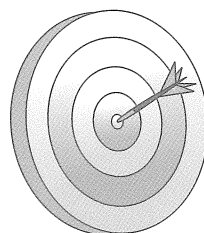
1. What is the average temperature of the 4 warmest cities in January?
2. What is the average temperature of Adelaide, Perth and Darwin in July?
3. What is the average temperature of the cities in January?

Investigation

Refer to the internet to find today's maximum temperature in each of the cities.

Level 1

1. How many children were on each bus if 8 buses were ordered to take the 384 children on the excursion?
2. Ben bought 6 packs of red balls and 2 packs of green balls. How many balls did he buy if there were 5 in each pack?
3. How many points did Mack get in the darts competition if he got two 20s and a 15?



Level 2


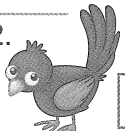


1. How many people were included in the survey if there were 14 523 males and 12 326 females?
2. How many building blocks were used if each of the nine models used 75 blocks?
3. 63 540 people attended the Grand Final. If roughly the same number of people sat in each of the 9 sections around the field, how many were in each section?

Level 3

1. Dani needs 75 lights for the Christmas tree. How many more does she need if she just bought 40 and already had 25?
2. Lila's dad gave her 40 pens to share with her friends. How many does she have left if she gave five to each of the five people at her table?
3. How many ice-creams were sold? Six vanilla were sold, strawberry was twice as popular as vanilla and chocolate was double strawberry.
4. A total of 137 718 people attended the opening and closing ceremonies of the Olympic Games. How many people attended the closing ceremony if 63 510 attended the opening ceremony?

Investigation

How many of each type of pet were at the pet show?

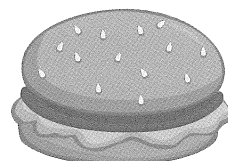
There were 46 pets in total.	More than half were dogs.	There were half as many birds as there were dogs.	There were 4 times as many dogs as there were cats.	There were 3 times as many birds as there were fish.
1.  <input type="text"/>	2.  <input type="text"/>	3.  <input type="text"/>	4.  <input type="text"/>	

Level 1

1. How much did Lisa pay for her holiday if her plane fare was \$218 and her accommodation was \$1527?
2. How much is left of Tom's wage of \$490 after he pays tax of \$199?
3. What will be Adam's change from \$20 if he spent \$13.70 at the store?

Level 2

1. Each toy is \$4.20. How many toys did Riley buy if he spent \$21?
2. How much did Scott spend if he bought 10 tickets at \$5.95 each?
3. Hamburgers are \$4.20 or \$4.80 with egg. What would be the change from \$10 if I bought one with egg and one without?



Level 3

1. Brick pavers are \$12 a metre. How much will Brad pay for 15 metres?
2. Kara has a choice between two snowboards. What is the difference in price if the Iceman board is \$705 and the Racer board is \$579?
3. Tyson is paying off the \$304 he borrowed from his dad, over 4 weeks. How much will he pay each week?
4. Which is the best buy, 1 kilogram of laundry powder for \$3.20 or 1½ kg for \$5.10?

Investigation



\$6.50 each	2 for \$12.90	4 for \$25.20
5 for \$30	8 for \$46.40	10 for \$56

How much will each person spend if:

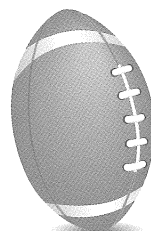
1. Ryan bought 3 individual pizzas?
2. Kim bought 3 pizzas using this strategy: 1 individual pizza and "2 for \$12.90"?
3. Jacqui bought 6 pizzas using this strategy: "2 for \$12.90" and "4 for \$25.20"?
4. Paul bought 6 pizzas using this strategy: "5 for \$30 and one single pizza?

Stuart can see two ways of buying 9 pizzas.

(A) "5 for \$30" and "4 for \$25.20" or (B) "8 for \$46.40" and one single pizza
Which strategy is cheaper, and by how much?

Level 1

1. Wes had \$16 but spent $\frac{3}{4}$ of it. How much does he have left?
2. Ethan has to mark out the football field. The field is 100 metres long. At what distance would he mark the halfway line?
3. Melanie bought a 1 kg bag of flour. How many grams did she use if she used $\frac{1}{5}$ of it in her cake?



Level 2

1. Our vegetable garden is 21 m². How many square metres are used for tomatoes if $\frac{1}{3}$ of the garden has tomatoes?
2. At 8 am, $\frac{1}{8}$ of the yard was in shade. By 4 pm $\frac{7}{8}$ was in shade. By what amount had the shade increased throughout the day?
3. If 1260 people attended the tennis match, how many paying customers were there if one-third were admitted free?

Level 3

1. The motel charges \$12.40 for breakfast, but for children under 12 it is $\frac{3}{4}$ of this price. How much for one adult and one child's meal?
2. Bree earns \$16 an hour, but on Sundays she is paid $1\frac{1}{2}$ times that rate. How much would she receive for 8 hours work on Sunday?
3. A 2 L bottle of orange juice is $\frac{3}{10}$ full. How much juice is this?
4. Each note book contains 80 pages. How many pages of notes has Sienna taken if she has filled $2\frac{1}{2}$ books?

Investigation

Calculate the amount saved by each person.

	Hamish	Sarah	Penny	David	Amy	Jack
Pay	\$180	\$210	\$300	\$320	\$240	\$160
Fraction saved	$\frac{1}{6}$	$\frac{1}{3}$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{1}{12}$	$\frac{3}{4}$
Amount saved	\$	\$	\$	\$	\$	\$

True or False?

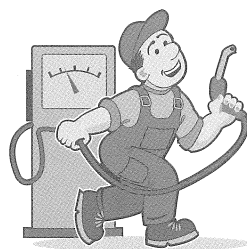
1. The person who earned the most saved the most.
2. The person who earned the least saved the least.
3. The person who earned the least saved the most.

Level 1

1. Lucas bought 4.3 metres of roof panels. How much did he use if he had 1.5 metres left over?
2. How much would I pay for 4.5 metres of timber if it is \$8 per metre?
3. How long is the piece of carpet if it is made of 6 pieces each 0.8 metres long but sewn together?

Level 2

1. Alice had 14.405 metres of material but only used 3.9 m. How much was left over?
2. A car can travel 11.25 kilometres on a litre of petrol. Estimate the distance it would travel on 20 litres.
3. Milo's mass was 43.207 kg. He is now 1.452 kg heavier. What is his mass now?



Level 3

1. What would be the perimeter of a rectangular court 25.8 metres long and 12.4 metres wide?
2. Jamal ran the time trial in 6.5 seconds. His other times have been 8.4 sec, 7.5 sec and 7.2 sec. What is his total time taken?
3. What is Charlotte's average score if her test scores have been 45.4, 43.8, 52.7 and 34.1?
4. Along the library wall are 6 cupboards each 0.950 metres long. What is the total length of the cupboards?

Investigation

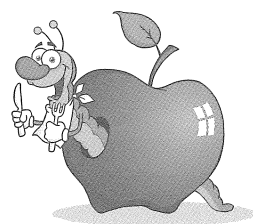
Who won the women's gymnastic competition?

Events	Lanie	Sarah	Charlie	Rose
Vault	9.357	9.723	9.448	9.563
Uneven bars	9.526	9.725	9.650	9.597
Balance beam	9.271	9.730	9.125	9.458
Floor routine	9.565	9.658	9.500	9.367
Score				
Place				



Level 1

- David bought 12 apples but 50% had worms. How many could be eaten?
- How far have we travelled if we have completed 25% of our 100 km trip?
- What was the value of Ricci's discount if she was given a 10% discount on a watch priced at \$200?



Level 2

- At 7:15 pm the oven temperature was 200°C . Two minutes later the temperature was 10% higher. What was the temperature at 7:17?
- How much did Joseph pay for his bike if the marked price was \$500 but he also had to add 10% GST?
- How much washing powder is left in the 1 kilogram pack if Scarlett has used 75% of it?

Level 3

- The courtyard had an area of 20 m^2 . What is its area now if it has been extended by 25%?
- How many goals did Kirra score in the netball game if she had 40 attempts and had a success rate of 75%?
- Last year, soccer registration fees were \$90. This year they have increased by 10%. What is the cost this year?
- Estimate the time it would take to fully download a computer program if, after 90 seconds, it was 25% complete?

Investigation

Complete the points table. Winning teams get 2 points, losing teams 0 points.

Team	Played	Won	Points	Position
All Stars	20	25%		
Wolves	20	40%		
Storm	20	90%		
T-Birds	20	75%		
Thunder	20	60%		
Waves	20	10%		

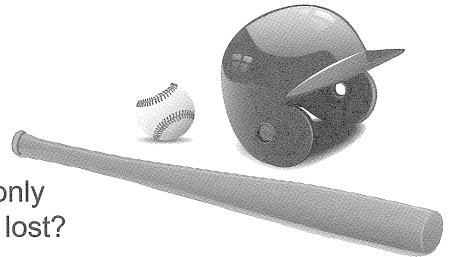


Level 1

1. How much profit did Anna make if she bought a surfboard for \$652 and sold it for \$896?
2. How many litres of pool chlorine did Max buy if he bought thirty-two of the 5 litre cans?
3. What would be the approximate mass of each biscuit in the 250 gram pack if the pack contained 10 biscuits?

Level 2

1. Ally's batting scores have been 12, 5 and 10. What is her average score?
2. Lara's netball team has played 36 games and only lost 25% of them. How many games have they lost?
3. On our trip, we spent \$2338 on fares, \$3210 on accommodation and \$310 on insurance. What was our total expenditure?



Level 3

1. A bunch of bananas has a mass of 2.5 kilograms. What would be the mass of $\frac{1}{5}$ of the bunch?
2. How much did Emma spend? She bought 2 kg of carrots at \$2.50/kg, 2 kg of tomatoes at \$4.20/kg and 1 kg of pumpkin at \$1.30/kg.
3. Matt's football team have only lost $\frac{1}{5}$ of their 25 games. How many games have they won?
4. Prior to the storm, the temperature was 33.7°C. Afterwards it fell by 5.9°C. What was the temperature after the storm?

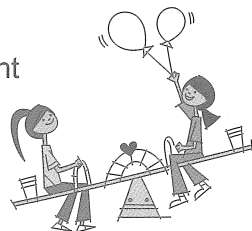
Investigation

Follow the rules for the first four numbers, then try two of your own.

Rules						
Think of a number	23	45	64	99		
Double it						
Add 6						
Divide by 2						
Subtract the original number						
Result						

Level 1

1. Lila bought a pumpkin and 5 kg of potatoes. The total weight was 8 kg. How much did the pumpkin weigh?
2. Lauren and Alex are perfectly balanced on a see-saw. How heavy is Alex if Lauren is 45.8 kilograms?
3. If cakes were "3 for \$5", how much would Jenna pay for six cakes?



Level 2

1. Brooke bought two tarts and cut them into slices so that each of the 12 guests got two slices. How many slices were there altogether?
2. How old is Tom's father? Tom is 11 and his sister Cleo is 4 years older than him. Their father is 3 times as old as Cleo.
3. Henry bought 5 metres of rope for \$5.45. If another customer bought 10 metres, would they be more likely to pay \$10 or \$15?

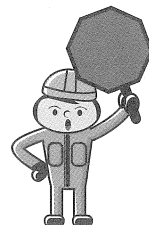
Level 3

1. If 6 packets of washing powder weigh 9 kilograms, what would be the mass of 2 packets?
2. At 6 am the temperature was 9°C . What was the temperature at 1 pm if it rose 2 degrees every hour?
3. The total length of the material Claire bought was 45 metres. How long was each roll if she ended up with 15 rolls?
4. What is the minimum number of kayaks needed for 37 scouts if there are five 4-seater kayaks and the rest are 2-seaters?

Investigation

Complete the table to see how far each car travels over certain times.

Car	Km per hour	1 hour	2 hours	3 hours	4 hours
1.	40 km/h				
2.	50 km/h				
3.	80 km/h				
4.	100 km/h				



5. How far apart will Car 1 and Car 3 be after one hour?
6. How far apart will Car 2 and Car 4 be after four hours?

Level 1

- Two out of every three marbles are red. How many red marbles would you expect to find in a bag of 9 marbles?
- Three out of every four people are children. How many children would you expect to count in a group of 12?
- Four out of every seven ice-creams were chocolate. Predict the number of chocolate ice-creams sold if 21 ice-creams were sold.

Level 2

- The weather report said there was "a 30% chance of rain". What chance is there that it will not rain?
- The doctor gave Sally a "1 in 4" chance of being fit for Saturday's game. What chance does she have of not playing this Saturday?
- The netball goal shooter has a 90% success rate. Estimate the number of goals she will score if she has 10 attempts.



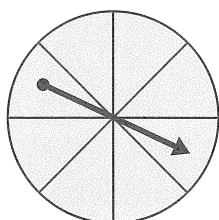
Level 3

- Mario's scores have been 57%, 30% and 63%. What is his average score?
- Wesley drove 86 km in the first hour, 90 km in the 2nd hour and 82 km in the 3rd hour. What was his average speed over the trip?
- How many red marbles would you expect to find in a bag of 100 marbles if every twentieth marble is red?

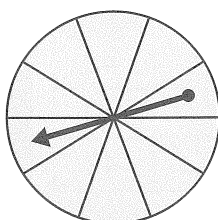
Investigation

Colour or write numbers on the spinners so that the pointer on:

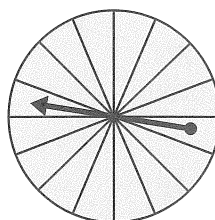
- Spinner A will most likely land on blue.
- Spinner B will most likely land on an odd number.
- Spinner C will have a 50/50 chance of landing on red.
- Spinner D will have a 25% chance of landing on a prime number.



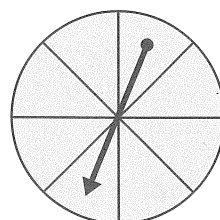
A



B



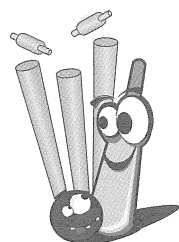
C



D

Level 1

1. The cricket team scored 325 runs in the match. If their first innings score was 248, what was the second innings score?
2. If a bus can carry 48 passengers, how many passengers could nine similar buses carry altogether?
3. What will be Ashley's weekly repayments over 5 weeks if he plans to pay back the \$655 he borrowed in that time?



Level 2

1. David received \$500 for 4 weeks work. What was his average weekly wage?
2. During the season, Susan averaged 35 points per game. How many points did she score if she played 9 games?
3. What would be the perimeter of a regular pentagon if its sides are 245 millimetres?

Level 3

1. Best Juice Pty Ltd made 9941 litres of juice in January, 10 555 L in February and 9678 L in March. How much was made in the period?
2. A carton contains 4 dozen pens consisting of equal numbers of 8 different colours. How many red pens would be in the carton?
3. A machine stacks 5 tennis balls into cans. How many balls are needed to fill 250 cans?
4. The aggregate crowd for the 3-day carnival was 15 966. What was the average daily income if the entry fee was \$10 each?

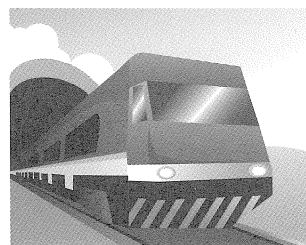
Investigation

42 children use public transport when travelling to school.

Record all the combinations you can think of if each group is a multiple of 3.

No group is smaller than 12.

Train	Bus	Total
		42
		42
		42



Level 1

1. Carla went to the movies. How much did she spend if train fares were \$4.50, movie tickets \$9.50 and lunch was \$7.50?
2. A nursery sells pot plants for \$9.50 each. If Lucas bought 6, how much did he spend?
3. How much change would Mitchell receive from \$50 after paying for 5 tickets on the roller coaster at \$4.50 each?

Level 2

1. How much did the teacher collect if each of the 30 children paid a bus fare of \$2.50 and an entry fee of \$5?
2. If petrol is \$1.50 a litre, how much would it cost to fill a car with 50 litres of petrol?
3. Felicity saves \$120 a week. How much will she save in a year?



Level 3

1. Which is the 'best buy': 1 kg at \$1.80, 1½ kg at \$2.40 or 2 kg at \$3.40?
2. Jonno paid a deposit of \$2195 on a new car. How much does he still have to pay if the car costs \$21 950?
3. Share \$375 so that Ryan receives twice as much as Matthew.

Investigation

As Mandy shops, she likes to estimate how much she is spending. She rounds every unit price to the nearest dollar and multiplies by the number of that item she has bought. She adds these amounts together as she goes and keeps a subtotal in her head.

Complete the table by rounding each price and multiplying by the quantity bought. Record this amount in the 'Rounded' column. Use these amounts to record the subtotals to estimate how much the shopping will cost.

Shopping list	Rounded	Subtotal
1. 6 tins of salmon @ \$2.25 each		
2. 2 detergent bottles @ \$4.25 each		
3. 5 tomato paste @ \$1.19 each		
4. 4 cereal packs @ \$3.60 each		
5. 6 pens @ \$1.78 each		

Level 1

1. How many children had their art work displayed if one-sixth of the 42 Year 5 children had their art work displayed?
2. Andrew has collected one-eighth of the 72 footy cards. How many cards has he collected?
3. The adult fare was \$48.50. How much is a child's fare if it is half the adult price?



Level 2

1. A farm with an area of 12 000 hectares is to be divided into thirds. What will be the area of each section?
2. Tom bought a one-quarter share in a boat valued at \$2400. How much was his share?
3. Our new TV was priced at \$690, but we were given a $\frac{1}{3}$ discount. How much did we actually pay?

Level 3

1. Mr Thomas watched his daughters play netball on Saturday. How many games did he watch if he saw $2\frac{1}{4}$ games at South Park and $1\frac{3}{4}$ games at Gray Park?
2. How tall is Brad? He is $\frac{2}{3}$ the height of his father who is 180 cm tall.
3. The drink bottle is $\frac{4}{5}$ full. How much is in the bottle if it has a capacity of 1500 mL?
4. On a map, a distance of 300 kilometres is represented by a 5 cm line. What distance would be represented by a 2 cm line?

Investigation

Four girls are saving for a day trip to Luna Park. They have \$144 so far. Use the clues to work out how much each girl has saved.

Clues

- Bianca saved $\frac{1}{6}$ of the amount.
- Claudia saved $\frac{1}{12}$ of the amount.
- Alana has $1\frac{1}{2}$ times as much as Bianca.
- Danielle saved $\frac{4}{8}$ of the amount.

BANK	
Bianca	\$ <input type="text"/>

BANK	
Alana	\$ <input type="text"/>

BANK	
Claudia	\$ <input type="text"/>

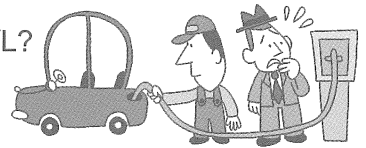
BANK	
Danielle	\$ <input type="text"/>

Level 1

1. Kendra lives 8.7 km from school. If the bus has travelled 6.8 km, how much further does she have to travel?
2. Seven pieces of chain, each 0.6 metres long, have been joined to form one long chain. How long is the chain?
3. How long is the post if 2.3 metres is in the ground and 4.5 metres is above the ground?

Level 2

1. Peter scored of 95.4 out of 100 in his history test. How many marks did he lose?
2. How much would I pay for 40 litres of petrol at \$1.50/L?
3. Last year my sister was 96.7 cm tall. Since then she has grown another 5.6 cm. How tall is she now?



Level 3

1. What is the court's perimeter if its length is 7.3 m and its width is 5.2 m?
2. The "fun run" had four drink stations stretching from the start to the finish. How long was the run if the drink stations were 5 km apart?
3. Each geometric shape block had a thickness of 2.3 centimetres. If Clyde made a stack of six, how tall would it be?
4. What would be the mass of 12 bricks being carried in a wheelbarrow, if each brick has a mass of 3.6 kg?

Investigation

Daily hours of sunshine

Adelaide	Brisbane	Canberra	Darwin	Hobart	Melbourne	Perth	Sydney
7.7 hrs	8.0 hrs	7.6 hrs	8.5 hrs	5.9 hrs	5.7 hrs	7.9 hrs	6.8 hrs

Rearrange the data so that the cities are in order from least amount of sunshine to the greatest amount of sunshine.

Daily hours of sunshine



How much more sunlight does Darwin receive per day compared to:

1. Hobart _____
2. Sydney _____
3. Canberra _____
4. Brisbane _____

Level 1

1. Adelaide's normal wage is \$90. However, she was given 10% extra. How much did Adelaide receive?
2. Because it was Sunday, an extra 20% was added to the restaurant bill of \$200. What was the final bill?
3. Jenna's score in the spelling test was 25%. How many of the 40 words did she spell correctly?



Level 2

1. How much detergent is in the new pack if it contains 10% more than the old pack, which contained 500 grams?
2. The baseball game lasts 60 minutes. How much time is left if they have played 50% of the match?
3. The T-Birds have played 20 games so far this year, losing 10% of them. How many games did they win?

Level 3

1. Anna's page has an area of 160 cm², however, an illustration takes up 25% of the space. How many square centimetres are left to write on?
2. Ita's petrol tank has a capacity of 60 litres. How much fuel is in the car if it is 25% full?
3. Hanna saw a watch she liked priced at \$200. How much did she actually pay if she was given a 25% discount, but then, 10% GST was added on?

Investigation

Complete the table to find the price actually paid by the customer after being given a discount and then being charged 10% GST.

	Item	Marked Price	Discount	Discounted price	GST (10%)	Sale Price
1.	TV	\$500	50%			
2.	Lounge	\$700	25%			
3.	Fridge	\$600	10%			
4.	Computer	\$900	25%			
5.	Holiday	\$2000	50%			

Level 1

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

- Find the sum of each pair of diagonally opposite numbers in each box.
- Describe the pattern.

When I add vertically I can see another pattern.

Level 2

11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

- Find the sum of each pair of diagonally opposite numbers in each box.
- Describe the pattern.



Level 3

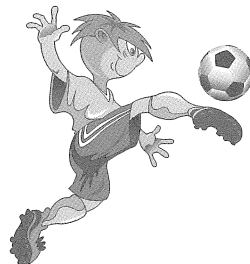
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

- Find the sum of each pair of diagonally opposite numbers in each box.
- Describe the pattern.
- If another set of boxes was made that continues the pattern of counting numbers, what would be the totals of the diagonally opposite numbers?
- Describe the pattern.

Investigation

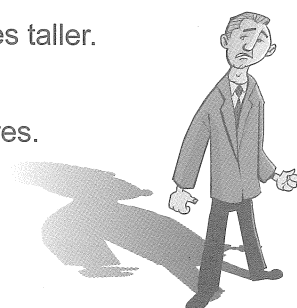
Below is the draw for the first five rounds of the soccer competition. Tom spilt sauce over his draw and can't read the Round 4 games. Work out the missing matches and write them on the draw.

Round 1	Round 2	Round 3	Round 4	Round 5
2 v 1	3 v 4	6 v 4		5 v 6
3 v 6	6 v 1	2 v 3		1 v 3
4 v 5	2 v 5	1 v 5		4 v 2



Level 1

1. Kristy is 2 years older than Michelle and 36 centimetres taller. How tall is Kristy if Michelle is 122 cm tall?
2. The perimeter of a square playground court is 36 metres. What is the length of each side?
3. Robert is 180 cm tall. How long is his shadow if it is one-third of his height?



Level 2

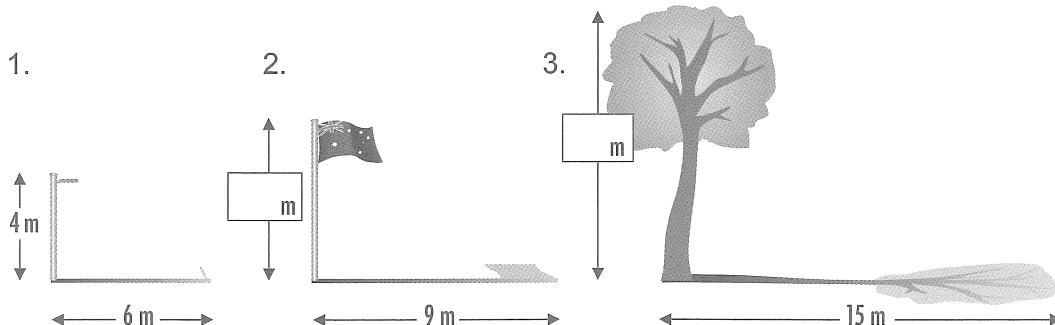
1. Harriet takes 2 steps to cover one metre. If she walks 800 metres to the bus stop, how many steps will she take?
2. The bricks Nelson is using for his path are 12 cm long. What is the length of his path if it is 50 bricks long?
3. The front of our house is 20 metres wide and has three rooms. How wide is the third room if the others are 7 metres and 4.5 metres?

Level 3

1. How much would it cost to put a fence around a paddock that is 25 metres long and 15 m wide if fencing is \$20 per lineal metre?
2. Alice's step is 80 centimetres long. How many steps would she need to take to cover 4 metres?
3. How wide is the garden? There are 21 plants, each with a 50 cm space between them and also 50 cm space at each end of the garden.

Investigation

If the goal post is 4 metres high, and at this time of day has a shadow of 6 m, work out the height of the flagpole and the tree.

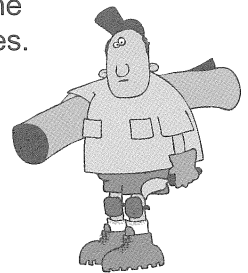


Level 1

1. Penny and Hamish have their own garden at school. What is its area if it is 7 metres long and 6 metres wide?
2. What is the area of the football field if it is 100 metres long and 50 metres wide?
3. The area of a square park is 6400 m^2 . How long is each side?

Level 2

1. Derek has a budget of \$1100 to spend on carpet. The carpet he likes is \$40 per square metre. His room is 6 metres by 5 metres. Does he have enough money?
2. What is the area of the courtyard if it consists of 10 sections, each 4 metres by 2 metres?
3. Our playground has an area of one hectare. If $\frac{1}{5}$ of the area is shaded, how many square metres are unshaded?

**Level 3**

1. 50% of the park is for passive recreation. What area of land is available for games if the total area of the park is 5 hectares?
2. How many square metres of insulation foam would fit in a ceiling 6.2 metres long and 5 metres wide?
3. How many strips of wallpaper 50 cm wide are needed for a wall 4.5 metres wide?
4. How many 5 cm^2 tiles would fit on a 50 cm by 30 cm tray?

Investigation

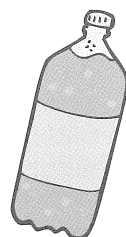
Use the information in the illustration to:

1. Calculate the number of cans of varnish needed to varnish two rooms with dimensions of 6 m by 3 m and 4 m by 3 m.
2. How much will the total cost of the varnish be?



Level 1

1. How much milk do we use per week if we use 500 mL each day?
2. What is the volume of a tank 6 metres long, 5 metres wide and 10 metres high?
3. A bottle has a capacity of 750 mL, but only 95 mL is left. How much has been used?



Level 2

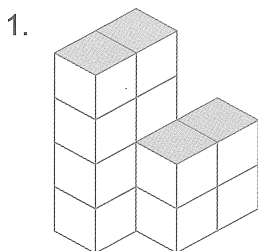
1. How tall was the container if its volume was 72 m^3 and its base had an area of 12 m^2 ?
2. What is the volume of a pool which is 2 metres deep, 11 metres long and 4 metres wide?
3. The rectangular prism had a volume of 24 cm^3 . If $\frac{1}{3}$ of the prism was blue and the balance was red, what volume was red?

Level 3

1. Estimate the mass of Trent's drink bottle if it contains 375 mL of water and Trent knows that one millilitre of water has a mass of one gram.
2. Which box takes up the most space: the red box which is a cube with sides of 2 metres, or the blue box 4 m long, 2 m wide and $1\frac{1}{2}$ m high?
3. Jack and Jill built models using the same number of cubes. Jack's model had the dimensions of $6 \times 4 \times 3$ cubes. How high was Jill's model if its base was 4 cubes \times 2 cubes?

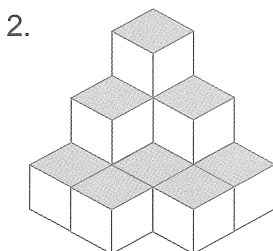
Investigation

How many cubes can you see? How many cannot be seen?



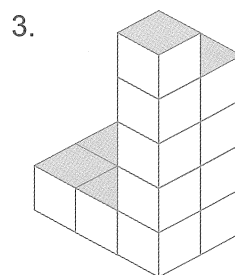
Can see _____

Can't see _____



Can see _____

Can't see _____



Can see _____

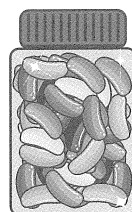
Can't see _____

Level 1

1. A jockey whose mass is 54 kilograms has to weigh 48 kilograms to race. How much weight does he have to lose?
2. If a loaf of bread weighs 675 grams, what would be the mass of a tray of 10 loaves?
3. 4 kilograms of homemade muesli was poured into 5 jars. How many grams were in each jar?

Level 2

1. Jelly beans come in different size jars. If the first three jars are 150 g, 300 g, and 450 g, estimate the size of the next jar.
2. Sue's mass was 68 kg at home but 65.4 kg on the scales at the gym. What was the difference between the two measurements?
3. How much heavier is Corrine than Ebony, if Corrine weighs 42 kg 780 grams and Ebony weighs 38 kg 430 grams?



Level 3

1. A car's mass when loaded is 1.354 tonnes. When empty it is 500 kg lighter. What is the car's mass when empty?
2. A truck weighs 5 tonnes by itself. If it is carrying three containers each with a mass of 1.5 tonnes, what will be the total mass?
3. What is the average mass of the indoor soccer team if their individual masses are 81 kg, 64 kg, 38 kg, 95 kg and 42 kg?

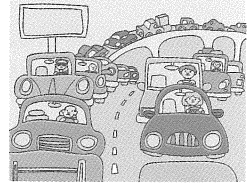
Investigation

What do I weigh on other planets? To find out multiply the weight on Earth by the decimal below each planet's name.

Earth x 1	Mercury x 0.4	Venus x 0.9	Jupiter x 2.5	Saturn x 1.1	Neptune x 1.2
20 kg	8	18	50	22	24
30 kg					
40 kg	16	36			48
50 kg				55	
60 kg			150		
65 kg	26	58.5		71.5	

Level 1

1. Ryan allowed 27 minutes for the drive but due to a traffic jam, it took an extra quarter of an hour. How long did his trip take?
2. What was the difference in temperature between Monday's minimum of 9°C and maximum of 23.5°C ?
3. Charlie began the trip at 1:53 pm and completed it at 11:30 pm. How long did it take him to complete the journey?



Level 2

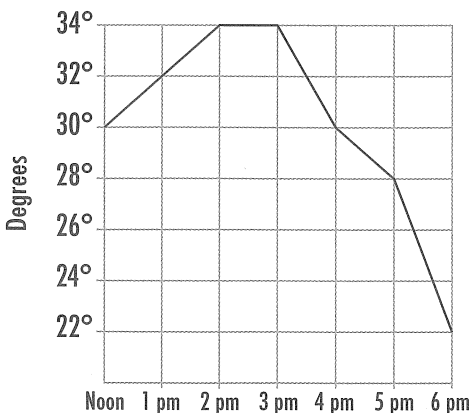
1. According to Will's 24 hour watch, he left home at 13:05 and arrived at the base at 23:30. How long was his trip?
2. Rob recorded the temperature in four rooms. They were 28°C , 26°C , 20°C and 18°C . What was the average room temperature?
3. If we drove for $2\frac{1}{2}$ hours at an average speed of 90km/h , what distance did we cover?

Level 3

1. The temperature rose 3°C every 30 minutes from 10 am till 1 pm when it steadied at 39°C . What was the temperature at 10 am?
2. The swimming record was 1 minute 14.3 seconds. What is the new record if Kate took 1.5 seconds off that time?
3. Estimate how long it would take to completely download the data if it took 21.5 minutes to complete 50% of the task.

Investigation

Temperature Noon – 6 pm



True or false.

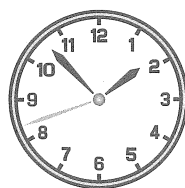
1. At 1 pm it was 32°C .
2. At 2:30 pm it was 34°C .
3. It was 32°C at 1 pm and also at 4 pm.
4. The same temperature was recorded at 12:30 pm and also at 4 pm.
5. The temperature rose 5° between noon and 3 pm.
6. The temperature fell 6° between 5 pm and 6 pm.

Level 1

1. Is it true that the hands of a clock form a right angle at 3 o'clock?
2. If Max used 4 match sticks to make a square shape, how many match sticks would he need to make 12 separate squares?
3. Jonno is using match sticks to build hexagons. How many complete hexagons can he make using a box of 50 matches?

Level 2

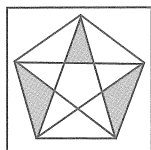
1. Is it true that the hands of a clock form an obtuse angle at 'ten to 3'?
2. Tom constructed a right angle and then bisected it by drawing an angle of 35° . What size was the complementary angle?
3. Is it true that the hands of a clock form an obtuse angle at 'ten past 3'?



Level 3

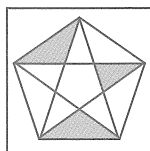
1. Is it true that the hands of a clock form an obtuse angle at 4 o'clock?
2. Alice made a square using 4 matches but only used 3 more matches to make two squares joined together. How many matches would she need if she made 3 squares, and they all shared one side?
3. Lila bisected a straight line by drawing an angle of 70° . What size was the supplementary angle?

Investigation

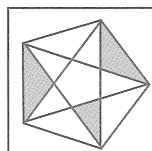


Noah created this shape using a regular pentagon and its diagonals. He then rotated it 180° . Select and colour the shape below that shows the pentagon in its new position.

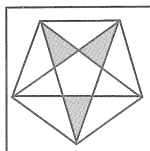
A



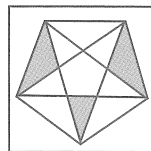
B



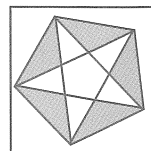
C



D

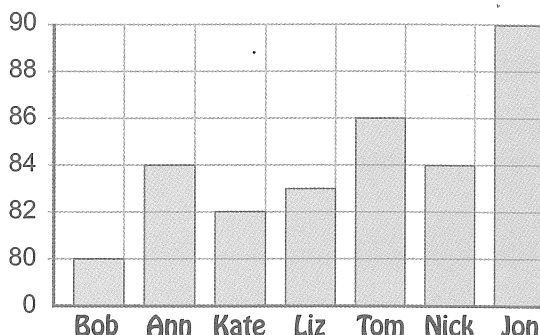


E



Spelling test scores

June scores



Level 1

1. What is the difference between the highest and lowest scores?
2. What is the difference between the lowest and second lowest scores?

Level 2

1. Which students scored below the class average of 84?
2. Which students scored above the class average of 84?

Level 3

1. What was the average score for the three girls?
2. What was the average score for the four boys?

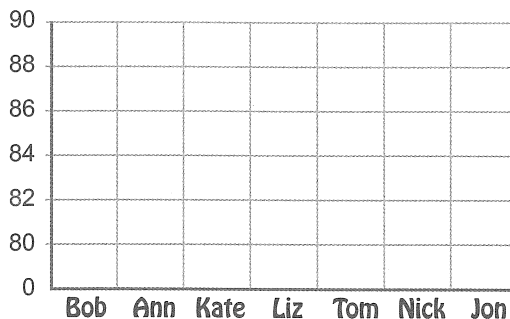


Investigation

Create a column graph for December using the data below.

- The three girls improved by 5 points each.
- Jon scored one less than Kate.
- Bob's score in December was 10% higher than in June.
- The other two boys' scores improved by 3 points each.

December scores

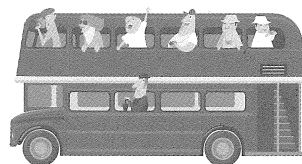


Level 1

1. One thousand, four hundred and twenty-five people attended the fete on Saturday and nine hundred and thirty-eight attended on Sunday. What was the total attendance over the weekend?
2. William's innings during the cricket final was made up of 3 sixes, 5 fours, 4 twos and 10 singles. What was his total score?
3. Applegate Theatre has a capacity of 656, but only 375 seats were occupied. How many empty seats were there?

Level 2

1. Oranges are packed 20 to a bag. How many bags are required for 400 oranges?
2. What is the maximum number of passengers that can be carried if 15 buses, each with a capacity of 48, are ordered for the school excursion?
3. In the snooker game, I was 48 points behind my opponent, then I scored this series of points: 1, 6, 1, 7, 1, 8, 1, 5, 2, 3, 4, 5. Am I winning or losing now?



Level 3

1. The grandstand at Kanangra Oval is made up of 60 rows. What is the capacity of the stand if each row seats 120 people?
2. The service fee for each of the four cars owned by the business was \$1650. What was the total bill?
3. How many points did Jane score in the table tennis tournament if her winning scores were 21 to 10, 21 to 15 and 21 to 12, and her opponent beat her 21 to 15 in one game?

Investigation

1. How much shorter is it by air than by road when travelling from Melbourne to Adelaide?
2. How much longer is it by road when travelling from Adelaide to Sydney?
3. How long is the drive from Sydney to Melbourne, then Adelaide, then directly back to Sydney?

Journey	Kilometres	
	Car	Plane
Sydney to Melbourne	877	713
Melbourne to Adelaide	726	655
Adelaide to Sydney	1407	1165

Complete the balance column for the soccer club's bank account.

Date	Transaction	Debit	Credit	Balance
Feb 11	Opening balance			\$13 400.05
Feb 18	Registration fees		120.00	
Feb 20	Registration fees		240.00	
Feb 25	20 Soccer balls	440.00		
Mar 3	Interest		96.78	
Mar 8	40 Witches hats	440.00		
Mar 10	20 Jumpers	500.00		
Mar 17	Raffle prizes	987.00		
Mar 25	Registration fees		120.00	
Mar 30	Raffle sales		1481.85	
Mar 31	Registration fees		480.00	



Level 1

- On February 18, two players paid their registration fees. How much does it cost to register one player?
- How much does it cost to register three players?

Level 2

- On March 8, 40 witches hats were bought. What is the price per hat?
- Estimate the price of purchasing 30 witches hats.
- What was the total amount of registration fees collected?

Level 3

- On February 25, the club bought 20 balls. What is the cost of each ball?
- Estimate the cost of a set of 10 witches hats and 2 balls.
- How much profit did the raffle make?

Investigation

Green Point Netball Club - Registration Fees

1 family member	\$50
2 family members	\$90
3 family members	\$129
4 or more family members	\$150

Calculate the average price per member if there are:

- two family members.
- three family members.
- four family members.
- five family members.
- six family members.



Level 1

1. \$5.40 was collected from each student for the excursion. What was the price of the bus fare if it was $\frac{1}{5}$ of the cost?
2. The adult fare is \$78.90. How much is a child's fare if it is half the adult fare?
3. The coffee table was priced at \$90. How much would it cost a customer after GST of 10% was added on?

Level 2

1. David's air fare was \$3000. How much could he take off if he was given a 10% discount?
2. Jay walks 2.8 km every day. How far will he walk in 14 days?
3. One-quarter of Luke's wage is paid as tax. How much tax would he pay if his annual salary is \$72 000?



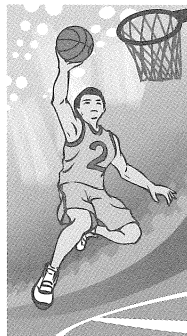
Level 3

1. The chemist poured 12.5 millilitres of cough medicine into each bottle. How many millilitres did he need to fill six bottles?
2. The base of Jackson's graph is 58.1 cm long. If it is divided into 7 equal intervals, how long is each interval?
3. After travelling 1520 kilometres, we had completed one-third of our trip. How long was the trip?
4. A tourist bus completed a 625.8 km journey over 6 days. What was the average daily distance travelled?

Investigation

Construct a points table for the 20 rounds of the basketball competition. Winning teams receive 2 points and losing teams 0 points.

Teams	Games won	Points	Position
All Stars	$\frac{1}{10}$		
Bombers	$\frac{1}{5}$		
T-Birds	30%		
Ravens	40%		
Jaguars	0.9		
Flames	0.8		
Comets	$\frac{7}{10}$		
Jets	60%		



Level 1

1. Estimate the cost of 12 T-shirts if they are "3 for \$20".
2. For every dollar April earns, her dad gives her 50 cents. How much will her Dad give her if she earns \$20?
3. Chocolate cakes are three times as popular as caramel. Estimate how many chocolate cakes were sold if 6 caramel cakes were sold.



Level 2

1. How much did Tom spend if he started out with \$135 and came home with \$47?
2. How many pupils were there if there were 8 teams of seven, and 3 who could not play because of injuries?
3. The cook used 3 sweet potatoes to every 2 onions when making soup. How many onions did she use if she cut up 12 sweet potatoes?

Level 3

1. Raymond mixes blue paint with yellow paint in the ratio of 4:1. If he mixed 20 litres of paint, how many litres of blue did he use?
2. When Peter was 5 years old he got \$2 pocket money per week. When he turned 6 it went up to \$4 per week and when he turned 7, he got \$6. Estimate how much pocket money he receives, now that he is 11.
3. Rex earns twice as much as Alex, but only saves half as much as Alex. How much does Rex save if we know that Alex earns \$80 per week and saves $\frac{3}{4}$ of it?
4. What distance could Eve run by the end of week four, if she began by running 2.5 km and kept on doubling the distance each week for four weeks?

Investigation

Fill in Emily's time sheet for the week. We know that she earned \$280 in total and is paid \$14 per hour. She worked a different number of hours each day.

	Monday	Tuesday	Wednesday	Thursday	Friday	
Hours						
Amount						\$280

Level 1

1. The playpen Daniel is building is 8 metres long and 5 metres wide.
What is its total area?
2. How many metres of fencing will I need to fence my pool
if it is 8.5 metres long and 6.5 metres wide?
3. At the conference, the 6 speakers each spoke for 18 minutes.
What was the total length of the speeches?



Level 2

1. In the final of the 1500 metres, Damian took 1.3 seconds off the record.
What was his time if the previous record was 10 minutes 40 seconds?
2. The combined mass of the 5 men in the basketball team was 410 kg.
What was the average mass of each player?
3. At the boat show, 1296 boats were on display. If $\frac{1}{3}$ of these
were sailboats, how many other boats were on display?

Level 3

1. What is the size of Dane's block of land if his home is 96.7 m²
and his gardens and lawn are 8.2 metres by 7 metres?
2. How much did my grocery bill amount to if I bought 5 kg of potatoes
at \$3.50/kg, 3 kg of tomatoes at \$2.40/kg and 500 grams of onions
at 90 cents/kg?
3. A pool has a capacity of 28 000 litres. At present it is $\frac{3}{4}$ full.
How many litres is this?

Investigation

Year 5 surveyed 360 children to find their favourite colours.
Colour the wheel to make a pie graph of the data they collected.
Record the number of people in each group.

Data	Number
$\frac{1}{2}$ of the group chose blue.	
$\frac{1}{2}$ of the remainder chose red.	
$\frac{1}{3}$ of those left chose green.	
$\frac{1}{2}$ of the rest chose pink.	
$\frac{1}{12}$ of the group chose black.	

