

Year 7 NUMERACY

Non-calculator

Test 1 Annotated

INSTRUCTIONS TO STUDENTS



Use a 2B pencil to show your answers.



For the multiple-choice questions, show your answer by shading the matching bubble. If you make a mistake, erase the shading and shade the correct bubble.



For the other questions, write your answer in the box provided. If you make a mistake, erase it and write the correct answer.

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1 Choose the correct answer to complete the following pattern.

$$11 \times 23 = 253$$

$$11 \times 42 = 462$$

$$11 \times 63 = 693$$

$$11 \times 51 = 5 \square 1.$$

HINT

Look at the number between the first and third digits of the right-hand side.



$$11 \times 51 = 511$$

$$11 \times 51 = 531$$

$$11 \times 51 = 541$$

$$11 \times 51 = 561$$

2 What speed is closest to the speed indicated on the speedometer?



HINT

Look at the speed indicated by each division on the scale.

108 kph

115 kph

118 kph

128 kph

3 Which of the following can be used to calculate the value of 8×9 ?

HINT

Use factors and primes.

$$2^2 \times 3^2$$

$$2^3 \times 3^2$$

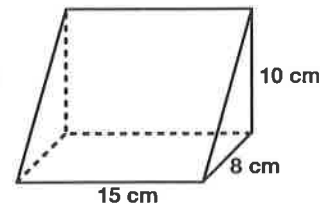
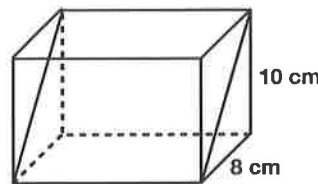
$$2^4 \times 3$$

$$2^2 \times 2 \times 3$$

4 A rectangular prism is cut in half as shown.

Two wedges are formed.

The shape of the largest face of the wedge is a:



triangle

rectangle

parallelogram

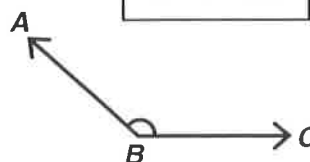
trapezium

HINT

Think about the difference between how the drawing looks and how the real thing looks.

5 Choose the most likely size of the angle ABC .

- 35°
 145°
 215°
 325°



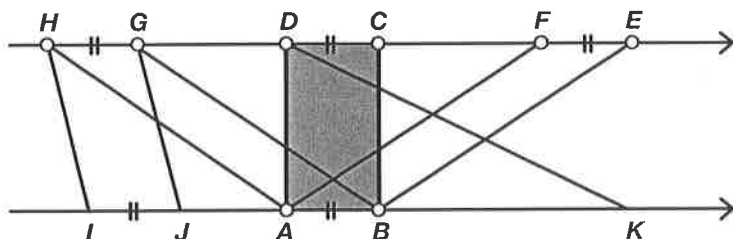
not to scale



THINGS TO KNOW

A right angle measures 90° . An acute angle measures less than 90° . An obtuse angle measures between 90° and 180° . A reflex angle measures between 180° and 360° . A full circle measures 360° .

6 Parallel lines and lines of equal length are as shown.



THINGS TO KNOW

The area of a rectangle and the area of a parallelogram are both found by multiplying the length of the base by the perpendicular height.

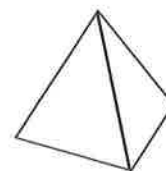
For the shaded area $ABCD$ in the diagram, which of the shapes does **not** have the same area?

- $ABGH$
 $GHIJ$
 $ABEF$
 $BKDG$

7 A tetrahedron is to be made from a paper net.

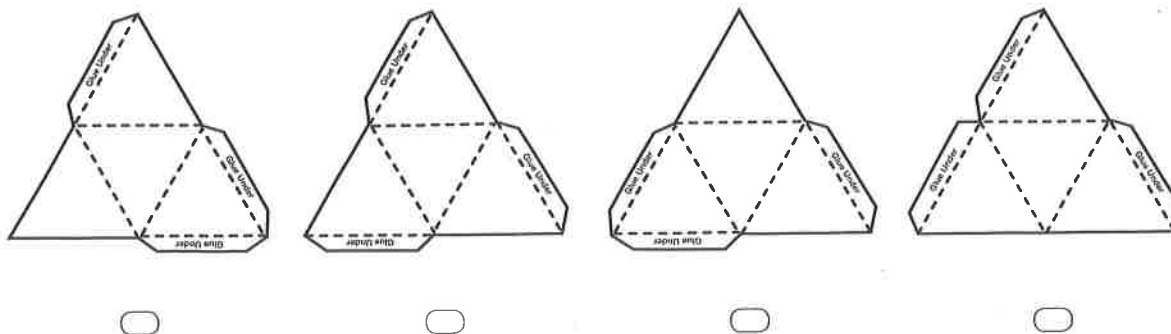
You must fold along the dotted lines and glue the edges together using the flaps.

Which net has the flaps in the **wrong place** to allow you to glue each edge?



HINT

There should only be one flap for each edge of the tetrahedron.



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8 Ben's score was three more than twice Yanni's score.

Ben scored 15.

What was Yanni's score?

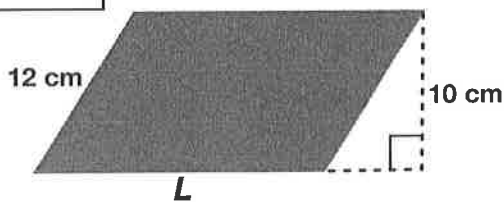
HINT

Draw a flowchart or use trial and error. If working backwards, be careful with order of operations.



9 The area of the shaded parallelogram is 180 cm^2 .

not to scale



TRAP

Think about whether you need the perpendicular height or the length of the sloping side.



What is the length of the shaded parallelogram?

9 cm

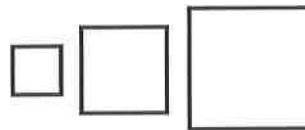
15 cm

18 cm

30 cm

10 The areas (cm^2) of three squares are:

1, 4, 9, ...



What is the area of the next square in the pattern?

 cm^2

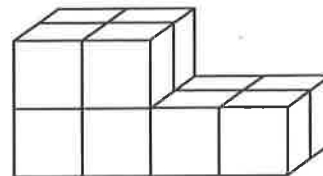
HINT

Think about the pattern made by the side lengths of the squares.



11 The solid object is formed using cubes with sides measuring 1 cm.

The number of extra cubes needed to make a rectangular prism containing 16 cubes is:



4

8

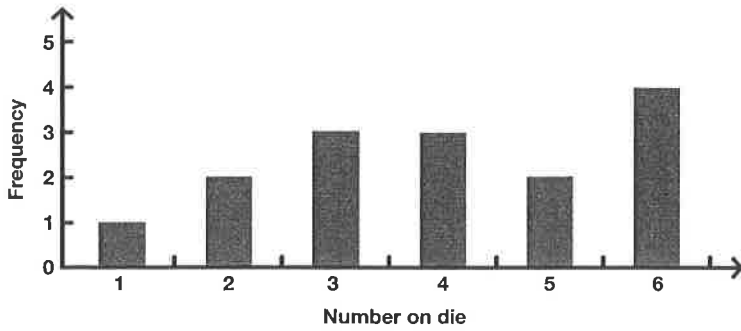
12

16

HINT

First, look at the number of cubes in the object.

12 Sam rolled a die 15 times and recorded the results.



The results are shown in the column chart.

What was the chance that Sam rolled a 5?

$\frac{1}{15}$

$\frac{2}{15}$

$\frac{1}{6}$

$\frac{1}{5}$

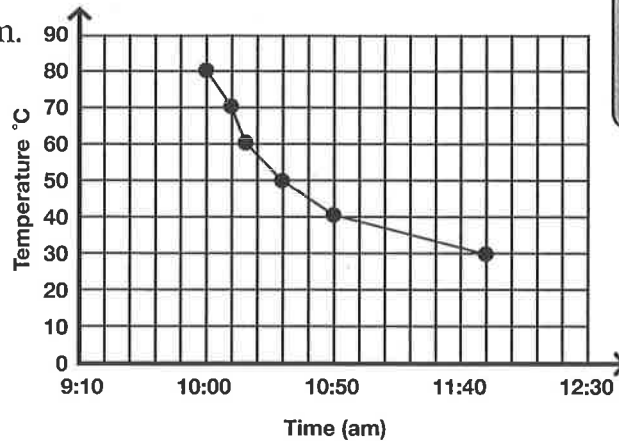
HINT

Check how many 5s were rolled out of the total possible results.

13 Ari measured the temperature of a saucepan of water as it cooled.

He started measuring at 10:00 am.
The results are plotted on the graph.

How long did it take for the temperature to fall to half of its original value?



minutes

Time (am)

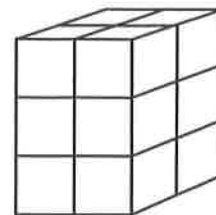
TRAP

Notice that the question asks you 'how long' not 'what time'.

14 Pam put all her 12 blocks into a pile as shown.

Penny grabbed some of them, leaving Pam with only $\frac{3}{4}$ of her blocks.

How many blocks did Pam have left?

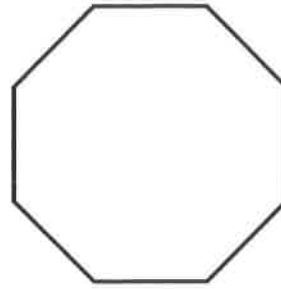


TRAP

Think about whether you need to find $\frac{3}{4}$ or $\frac{1}{4}$ of the total.

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- 15 A regular octagon has 8 equal sides.
The perimeter of the octagon is 9.6 cm.
What is the length of each side of the octagon?



cm

TRAP

Be careful of the decimal places.

- 16 1 slice of bread weighs about 28 g.
A textbook weighs about 1 kg.
A pack of playing cards weighs 85 g.
Two handfuls of potato crisps are most likely to weigh:



30 g

100 g

500 g

1 kg

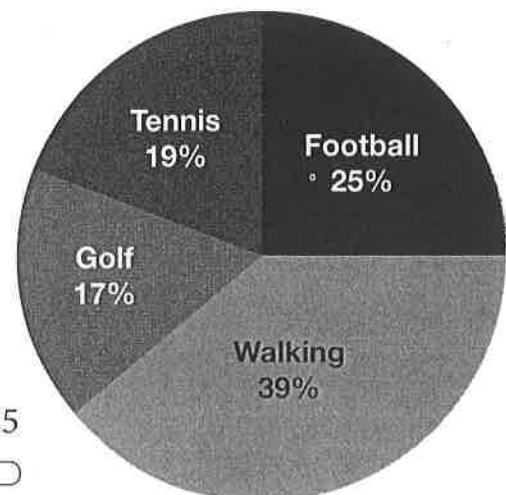
HINT

Compare the weight of the crisps with the other weights given, using the same units of measurement.

THINGS TO KNOW

1 kilogram = 1000 grams

- 17 The pie chart shows the percentages of students who generally choose one of four recreational activities.
60 students were asked to choose one of these activities.
How many students could be expected to choose football?



4 10 15 25

HINT

The number expected to choose an activity will depend on the percentage of students who generally choose that activity.

18 Two-thirds of a group of students took part in a competition.

There were 24 in students in the group.

How many **did not** take part in the competition?

- 8 12 16 20
-



TRAP

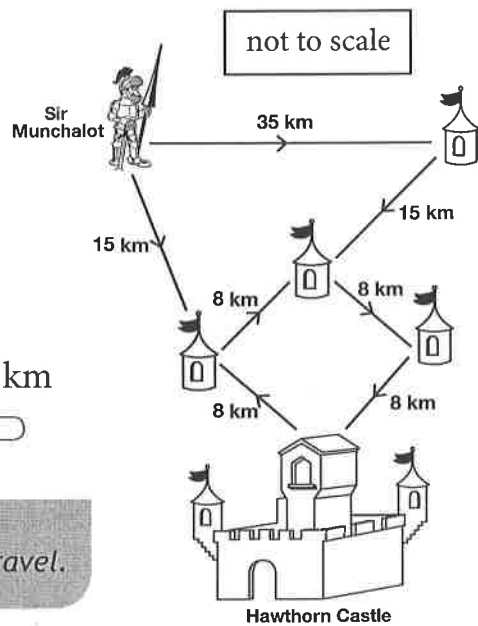
First work out the fraction of students that did not take part.

19 Sir Munchalot must ride to Hawthorn Castle for dinner.

He must travel along the roads shown and in the directions of the arrows.

What distance is the shortest way to dinner?

- 23 km 31 km 39 km 47 km
-



TRAP

Watch for the arrows indicating the direction of travel.

20 A 3D (three-dimensional) object has an odd number of faces.

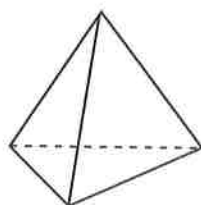
Two faces are triangles.

Three faces are rectangles.

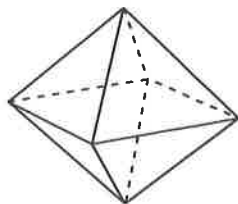
The object is a:

TIP

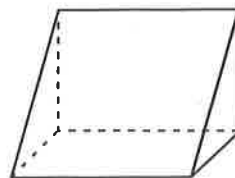
Tick off each property on the shape.



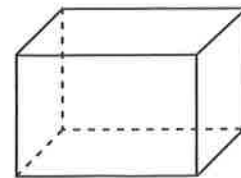
tetrahedron



octahedron



triangular prism



rectangular prism

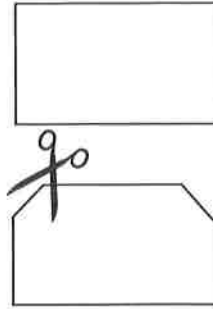
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- 21 Dee cut two corners off a rectangle as shown.
How many vertices does the figure now have?

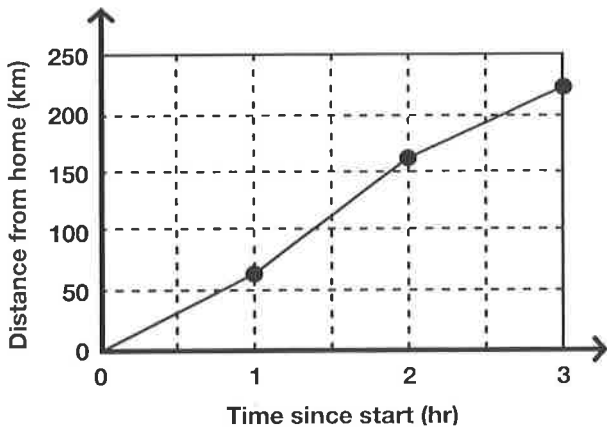


THINGS TO KNOW

Remember that vertices are corners.



- 22 Lisa is an electrician who needs to travel 220 km for a wiring job.
The graph shows Lisa's position at different times during the trip.



TRAP

You need to be clear whether you want the actual time or the time since the start.

Lisa left home at 12 noon.

At approximately what time was Lisa 100 km from home?

1:24 pm

1:40 pm

2:50 pm

3:00 pm

- 23 The following table shows the number of millilitres of water, \square , that must be added to different amounts of syrup, \blacklozenge , to make bottles of cordial.

Amount of water (mL)	\square	100	200	300	400
Amount of syrup (mL)	\blacklozenge	28	48	68	88

HINT

Test the values in the table using each rule.

The amount of syrup is related to the amount of water by a rule.

What is the rule?

$\blacklozenge = \square - 72$

$\blacklozenge = \frac{1}{2} \square - 22$

$\blacklozenge = \frac{1}{4} \square + 3$

$\blacklozenge = \frac{1}{5} \square + 8$

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24 A Goods and Services Tax (GST) is a tax that adds a percentage to the cost of most goods and services.

The tax is different in different countries.

In Australia the GST adds 10%, in Canada it adds 5% and in New Zealand it adds 12.5%.



Item	Price	Price with GST (A)	Price with GST (B)	Price with GST (C)
500 g pasta	\$1.80	\$1.98	\$2.03	\$1.89
250 g chocolate	\$5.44	\$5.98	\$6.12	\$5.71
1.5 L orange juice	\$4.95	\$5.45	\$5.57	\$5.20

Which of the following is true?

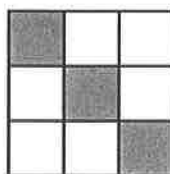
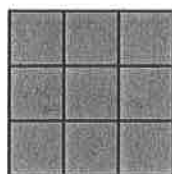
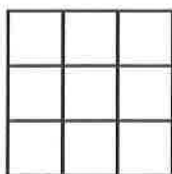
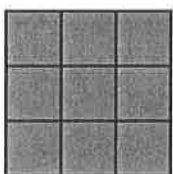
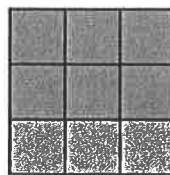
- A is Canada, B is New Zealand and C is Australia
- A is Australia, B is New Zealand and C is Canada
- A is New Zealand, B is Australia and C is Canada
- A is Australia, B is Canada and C is New Zealand

TIP

Try putting the GST percentages in order first and then look at the order of the prices.

25 A shaded square has an area of 1 cm^2 .

What is the total shaded area in the four squares below?



$1 \frac{1}{3} \text{ cm}^2$

$1 \frac{2}{3} \text{ cm}^2$

$2 \frac{1}{3} \text{ cm}^2$

$3 \frac{1}{3} \text{ cm}^2$

TRAP

Think about what fraction of the fourth square is shaded.

26 Peng ate $\frac{2}{3}$ of his spaghetti.

May ate $\frac{5}{6}$ of hers.

Who ate the most spaghetti?

TIP

Try working with equivalent fractions.



THINGS TO KNOW

Equivalent fractions have the same denominator.

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27 Which pair has the two temperatures that are closest to each other?

-2°C and -5°C

2°C and -5°C

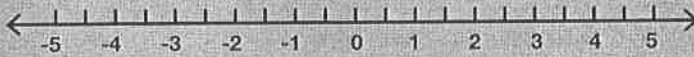
2°C and -2°C

-2°C and 5°C?



THINGS TO KNOW

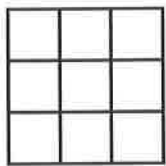
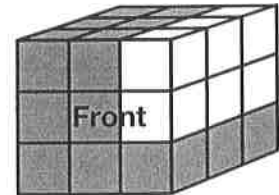
Use a number line showing negative and positive numbers to help you.

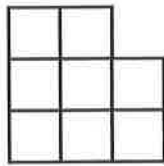


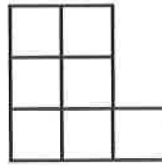
28 Emma makes a large cube from 27 smaller cubes.

She then removes 6 cubes as shown.

Which of the following is the front view of her object?







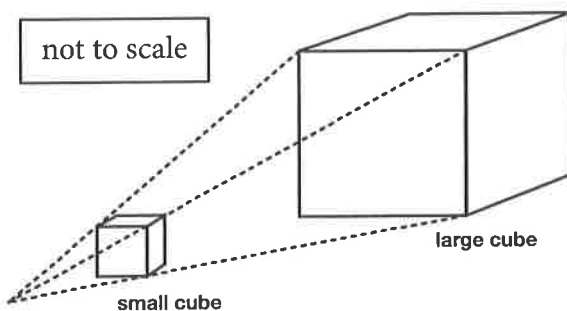


HINT

Picture what the front view of the large cube will look like with the 6 small white cubes removed.

29 The small cube has a volume of 1 cm^3 .

The large cube is 3 times larger in every direction.



TRAP

Each side length of the small cube is multiplied by 3, so think about what that does to the volume.

What is the volume of the large cube?

3 cm^3

9 cm^3

27 cm^3

81 cm^3

30 Which of these fractions is the largest?

$$\frac{2}{3}$$

$$\frac{5}{9}$$

$$\frac{1}{6}$$

$$\frac{2}{11}$$



HINT

Identify the obviously small fractions, and then work with equivalent fractions.

31 A die is tossed 300 times.

What is the most likely number of times you could get a number greater than 4?

50

100

150

250

HINT

The question is asking you what the chances are of rolling a 5 or 6 in 300 rolls of the die.

32 Through what angle does the minute hand of a clock move when the time changes from 5 minutes past 4 to 20 minutes past 5?

 °


TIP

Draw a diagram of the clockface and hands to help you.

HINT

Find the size of the angle between each of the 5-minute marks.