Year 9

Prepare for NAPLAN

MANGAHIGH
westermann

Instructions

There are two tests available for each level – TEST 1 and TEST 2. TEST 1 is a pre-test, and TEST 2 can be used as a post-test.

1. Complete questions in TEST 1

2. Have students mark their own test using the answer sheet provided

3. For each incorrect answer in TEST 1, complete the suggested 'Mangahigh activity'

4. Login to Mangahigh and use the 'Browse all activities' option, and type in the title of the Mangahigh activity. Complete the activity and earn a minimum of Bronze medal.

5. Attempt TEST 2 when students have completed all relevant suggested activities.

Mangahigh NAPLAN series

Year 9

TEST 1

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YEAR 9 NUMERACY – Test 1

1

$$x + 6 = 16$$

Which **one** of the following represents the solution to the equation?

$x = 8$ ☐

$x = 96$ ☐

$x = 10$ ☐

$x = 22$ ☐

*Mangahigh activity: **Solve linear equations; Substitute whole numbers into algebraic expressions; Substitute integers into algebraic expressions with exponents***

2

Complete the calculation to work out 58.9% of 130km.

58.9% of 130 = 130 x ☐

So, 58.9% of 130km is ☐ km

*Mangahigh activity: **Find percentages – calculator; Understand percentages***

3

A bookshop has an offer of 'BUY 2 GET 1 FREE' on all books.
Each book costs $12

BUY 2
GET 1
FREE

How much would 3 books cost?

$30 ☐

$36 ☐

$24 ☐

$12 ☐

*Mangahigh activity: **Calculate best buys***

4

The temperature rose from $09\,°C$ to $6\,°C$.

Which one of the following shows how much the temperature rose?

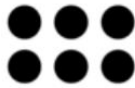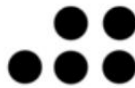$15\,°C$ ☐ $14\,°C$ ☐ $3\,°C$ ☐ $4\,°C$ ☐

*Mangahigh activity: **Use negative numbers;
Extending the number line – Pinata Fever***

5

In which pattern will there be 0 dots?

Pattern 1   Pattern 2   Pattern 3

4 ☐   7 ☐   8 ☐   6 ☐

*Mangahigh activity: **Describe patterns and linear rules;
Find the nth term in a linear sequence***

6

A company pays its employees $\$\,x$ per hour.

The company has $2x + 3$ employees.

Which **one** of the following is an expression for the cost, of paying all the employees for 8 hours?

$3x^2 + 3x$ ☐ $2x^2 + 3x$ ☐ $16x^2 + 24x$ ☐ $24x^2 + 32$ ☐

*Mangahigh activity: **Form equations with exponents;
Form an expression or formula***

YEAR 9 NUMERACY – Test 1

7

Last year David earned $40,000.

This year he earned $46,000.

What is the percentage increase?

15%   60%   72%   46%

☐   ☐   ☐   ☐

*Mangahigh activity: **Find percentage change - calculator;
Use percentages***

8

Which one of the following is $\dfrac{817}{1000}$ as a decimal?

81.7   0.0817   8.17   0.817

☐   ☐   ☐   ☐

*Mangahigh activity: **Change fractions into percentages and decimals;**
Change percentages into fractions and decimals; Change decimals into percentages and fractions*

9

Ethan shares $60 with his friend in the ratio 1 : 5.

Which one of the following shows the amount that Ethan gets?

$60 $30 $10 $50

☐   ☐   ☐   ☐

*Mangahigh activity: **Solve problems with ratios;
Use ratio and proportion (drawings and models)***

10

Evaluate

$$\sqrt{49} + 2 \times 2$$

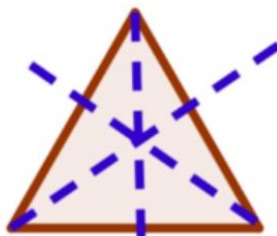| 9	11	6	12
☐	☐	☐	☐

*Mangahigh activity: **Use the correct order of operations using brackets and indices***

11

The dashed lines show all the lines of symmetry of an equilateral triangle.
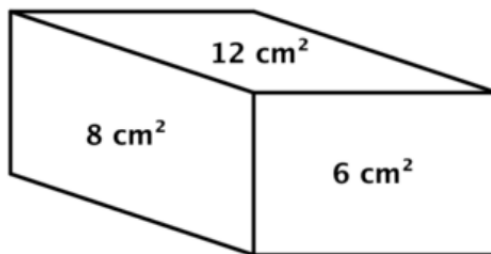**How many lines of symmetry are there?**

3	8	6	2
☐	☐	☐	☐

*Mangahigh activity: **Identify lines of symmetry;***
Identify and draw lines of symmetry

12

12 cm²

8 cm²

6 cm²

The surface area of the front, right and top faces of this cuboid are given above.

What is the total surface area of the cuboid?

42cm²	56cm²	52cm²	38cm²
☐	☐	☐	☐

*Mangahigh activity: **Calculate the surface area of cubes and cuboids;***
Calculate the surface area of joined shapes; Draw and recognise nets

13

Luke is travelling to a meeting 9 kilometres away at 3 km/h. The meeting is in 4 hours.

When will be arrive?

Early ☐   On time ☐   Late ☐   Insufficient information ☐

*Mangahigh activity: **Solve problems involving speed, distance, and time***

14

A glass contains 300 mL of milk.

Which one of the following is equal to 300 mL?

3000 cm^3 ☐ 3 cm^3 ☐ 30 cm^3 ☐ 300 cm^3 ☐
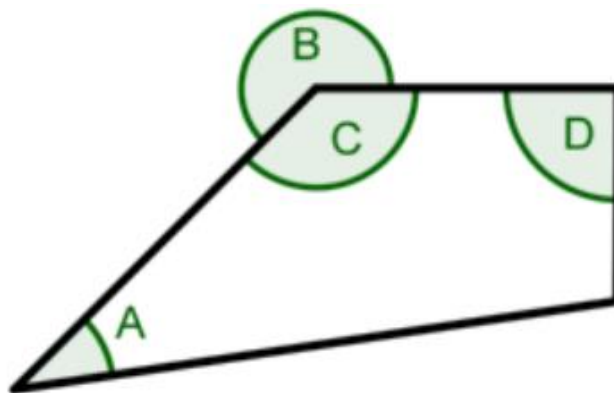
*Mangahigh activity: **Use and convert metric units;
Convert metric units of capacity***

15

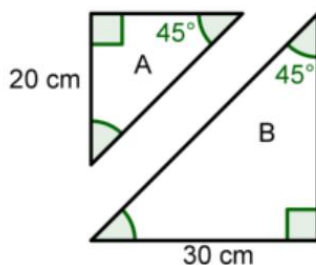Which of these is a reflex angle?

A ☐   B ☐   C ☐   D ☐

*Mangahigh activity: **Recognise quadrilaterals;
Learn facts about quadrilaterals***

YEAR 9 NUMERACY – Test 1

16

**The following shapes are similar.
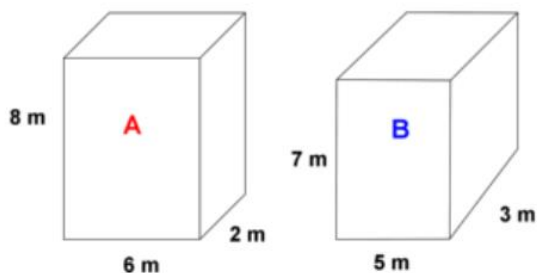What is the scale factor of enlargement from A to B?**

45°
20 cm
A
45°
B
30 cm

2	1.5	3	0.5
☐	☐	☐	☐

*Mangahigh activity: **Solve problems with similar shapes;
Recognise similar shapes***

17

8 m
A
7 m
B
2 m
6 m
3 m
5 m

Which of these cuboids has a volume of 105 m³ ?

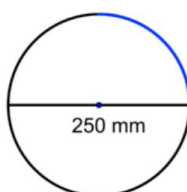| Neither	B	A	Both
☐	☐	☐	☐

*Mangahigh activity: **Calculate the volume of a cuboid***

18

**The blue arc makes a quarter circle.
What is its length to one decimal place?**

250 mm

19.6mm	196.3mm	196.4mm	1963mm
☐	☐	☐	☐

*Mangahigh activity: **Calculate the circumference of a circle***

19

Jack makes a 60˚ turn and then a full turn in the same direction.
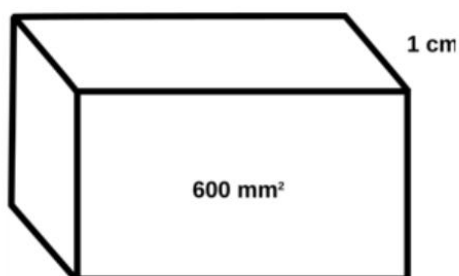
How many degrees does Jack turn?

320°	300°	400°	420°
☐	☐	☐	☐

Mangahigh activity: **Calculate angles around a point**

20

1 cm

600 mm²

What is the volume of the box in mm³?

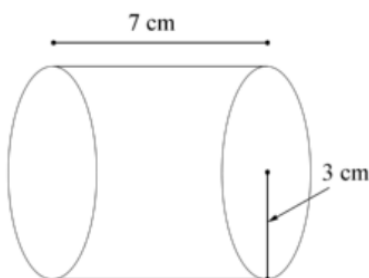| 6000mm³	6mm³	60mm³	600mm³
☐	☐	☐	☐

Mangahigh activity: **Convert units of area and volume**

21

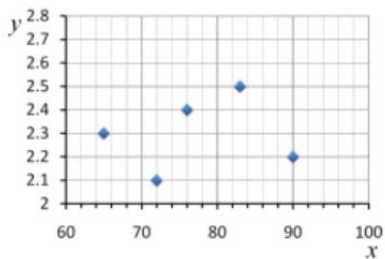Find the volume of the cylinder to 2 decimal places.

7 cm

3 cm

197.92cm³	65.99cm³	131.95cm³	196.3cm³
☐	☐	☐	☐

Mangahigh activity: **Calculate the circumference of a circle**

22

The scatter diagram shows the relationship between test scores
(x axis) and distance jumped (y axis) for a number of students.
What was the highest score achieved in the test?

95%	2.5%	83%	90%
☐	☐	☐	☐

*Mangahigh activity: **Understand scatter diagrams***

23

I roll a dice 300 times. On 50 occasions I roll a 6.
If I roll the dice another 300 times, what can you
say about the number of times I roll a 6?

Will definitely not be 50 times	Will definitely be 50 times	Could be 50 times	Will definitely be more than 50 times
☐	☐	☐	☐

*Mangahigh activity: **Learn about experimental probability***

24

The following table has one missing entry.
There are 2 class intervals that have the
least number of results.

Width (m)	0 - 49	50 - 99	100 - 149	150 - 199
Frequency	131	142	155	

What is the missing value?

155	156	130	131
☐	☐	☐	☐

*Mangahigh activity: **Find the modal class***

25

$$14 \div 0.2 =$$

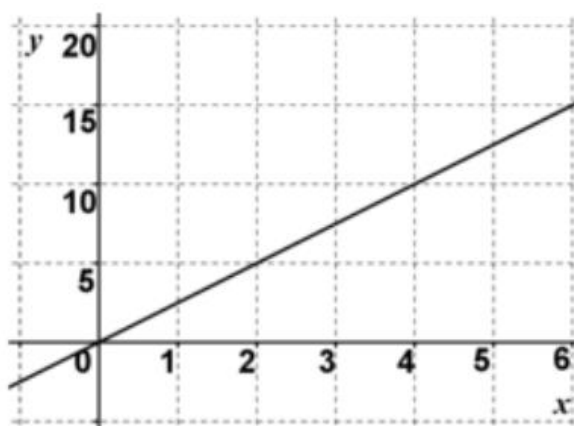| 7	70	40	25
☐	☐	☐	☐

*Mangahigh activity: **Divide by decimals***

26

The graph shows the cost (y axis) of buying a number of roof tiles (x axis). What is the cost of buying 6 roof tiles?

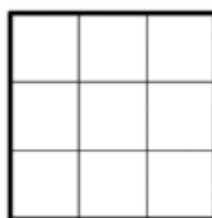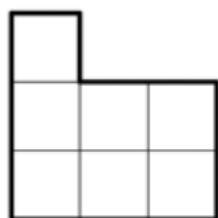| $10	$12	$5	$15
☐	☐	☐	☐

*Mangahigh activity: **Plot and interpret real-life straight line graphs***

27

What fraction of the larger shape is the smaller shape?

$\dfrac{7}{9}$	$\dfrac{2}{7}$	$\dfrac{2}{9}$	$\dfrac{9}{7}$
☐	☐	☐	☐

*Mangahigh activity: **Write one number as a fraction of another***

YEAR 9 NUMERACY – TEST 1

28

$$\frac{1}{5}th \text{ of } 150$$

30 ☐ 32 ☐ 25 ☐ 36 ☐

*Mangahigh activity: **Find the fraction of an amount***

29

Multiply each term in the bracket by 10.

$$(3x + 2)$$

$(3x + 20)$ ☐ $(30x + 10)$ ☐ $(30x + 20)$ ☐ $(30x + 2)$ ☐

*Mangahigh activity: **Multiply a bracket by a number***

30

25% of $880.

$220 ☐ $2.20 ☐ $8800 ☐ $25 ☐

*Mangahigh activity: **Write one number as a fraction of another;***

Year 9

TEST 2

Instructions:

- Once students have completed all Mangahigh activities marked as incorrect in TEST 1, they are now ready to attempt the post-test (TEST 2)

- Questions in TEST 2 is numbered P1, P2, P3 etc.

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YEAR 9 NUMERACY – Test 2

P1

$$y + 5 = 16$$

Which **one** of the following represents the solution to the equation?

$y = 8$ ☐ $y = 96$ ☐ $y = 11$ ☐ $y = 22$ ☐

P2

Complete the calculation to work out 63.9% of 120km.

63.9% of 120 = 120 x [   ]

So, 63.9% of 120km is [   ] km

P3

A shop has an offer of 'BUY 1 GET 1 FREE' on all DVDs.
Each DVD costs $20

How much would 10 DVDs cost?

$50 ☐ $100 ☐ $120 ☐ $200 ☐

P4

The temperature in New York this afternoon was -4 $°C$.

The temperature in Liverpool was 7 $°C$.

Which city had the lower temperature?

New York   Liverpool

☐   ☐

P5

How many dots are in the next pattern?

Pattern 1   Pattern 2   Pattern 3

6   8   5   4

☐   ☐   ☐   ☐

P6

The side lengths of a rectangle are x cm and $3x − 2$.

The area of the rectangle is 20 cm².

Which **one** of the following is an equation in x for the area of the rectangle?

$x^2 − 2 = 20$ $3x = 20$ $8x − 8$ $3x^2 − 2x = 20$

☐   ☐   ☐   ☐

P7

Last year a river was 16m wide.

This year the same river is 9m wide.

Work out the percentage decrease.

25% 43.75% 16% 84.25%

☐ ☐ ☐ ☐

P8

$$0.45 = \frac{45}{100}$$

Which one of the following is 0.45 as a fraction in its simplest form?

$\frac{5}{90}$ 45% $\frac{9}{20}$ $\frac{45}{100}$

☐ ☐ ☐ ☐

P9

Alexander and his brother share $42 in the ratio 1 : 5.

Which one of the following is the amount of money that Alexander gets?

$8 $7 $6 $9

☐ ☐ ☐ ☐

P10

Which calculation gives the same answer as

6 + 8 ?

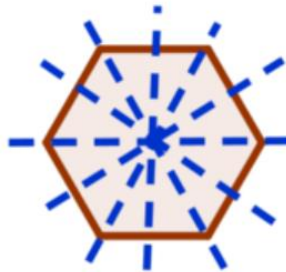2 x 3 + 8 ☐   3 + 3 x 8 ☐   3 + 4 x 2 ☐   10 − (4 + 8) ☐

P11

The dashed lines show all the lines of symmetry of a regular hexagon.
How many lines of symmetry are there?

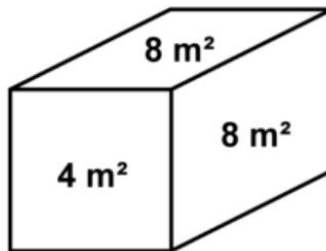3 ☐   8 ☐   6 ☐   2 ☐

P12

8 m²

8 m²

4 m²

The surface area of the front, right and top faces of this cuboid are given above.

What is the total surface area of the cuboid?

40cm² ☐   76cm² ☐   38cm² ☐   20cm² ☐

YEAR 9 NUMERACY − Test 2

P13

A car travels 25 kilometres in 30 minutes.

How many hours does it take to travel 150 kilometres?

6	12	4	3
☐	☐	☐	☐

P14

Which one of the following is closest to the length of a pencil?

17 centimetres	17 millimetres	17 metres	17 grams
☐	☐	☐	☐

P15

Which of these is a reflex angle?
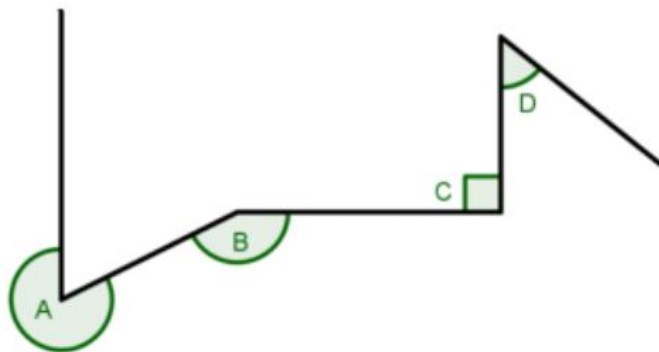
A	B	C	D
☐	☐	☐	☐

P16

The following shapes are similar.
Find x

8 mm

2 mm

x

3 mm

9m	12mm	9mm	12m
☐	☐	☐	☐

P17

8 m

A

5 m

B

3 m

7 m

5 m

4 m
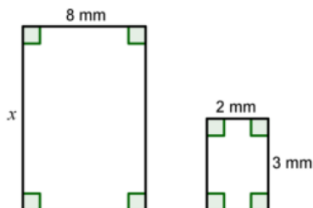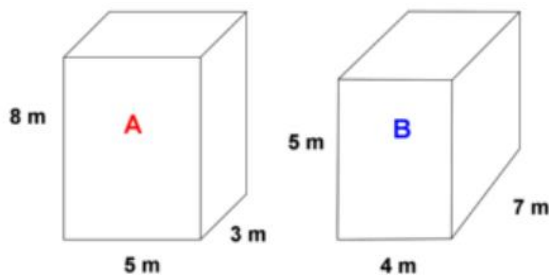
Which of these cuboids has a volume of 140 m³ ?

Neither	B	A	Both
☐	☐	☐	☐

P18

The blue arc makes a quarter circle.
What is its length to one decimal place?

168 mm
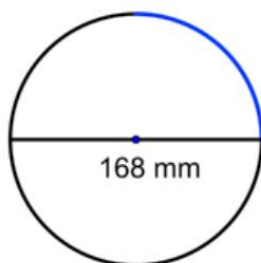
131.9mm	527.7mm	527.8mm	52.8mm
☐	☐	☐	☐

P19

240°
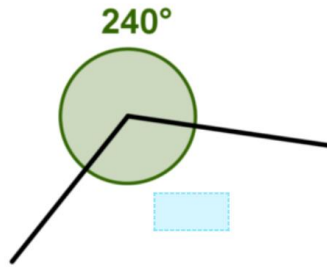
Label the missing angle.

140°	120°	220°	240°
☐	☐	☐	☐

P20

400 cm²
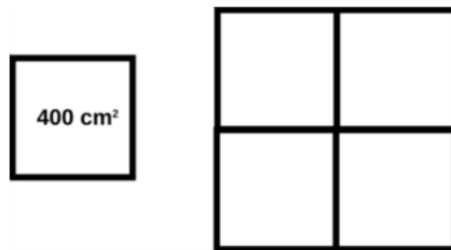
What is the area of the large square in m²?

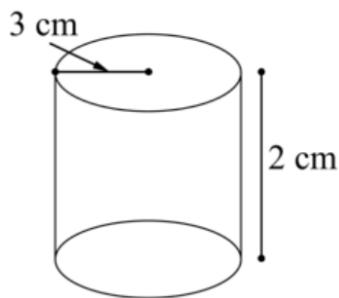| 0.16m²	1.6m²	0.016m²	16m²
☐	☐	☐	☐

P21

Find the volume of the cylinder.

3 cm

2 cm

$\pi \times 3^2 \times 2$	$\pi \times 2^2 \times 3$	$\pi \times 3 \times 2$	$\pi \times 2^2 \times 2$
☐	☐	☐	☐

P22

The scatter diagram shows the test scores (x axis) and distance jumped (y axis) by students. What are the scores for 2.7m and 2.9m?
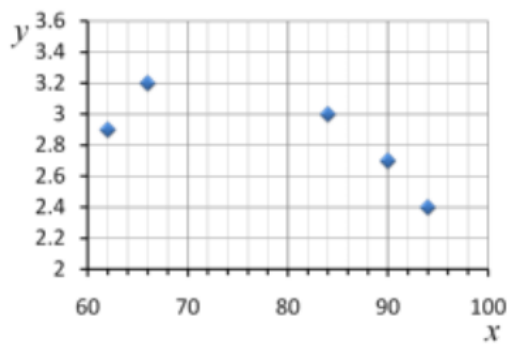
90% and 72% ☐

90% and 62% ☐

80% and 62% ☐

65% and 85% ☐

P23

A coin is thrown 40 times and either
lands on heads or tails.

The coin lands on heads 23 times.

How many times does it land on tails?

23 ☐

20 ☐

40 ☐

17 ☐

P24

The following table has one missing entry.

There are 2 class intervals that have the
least number of results.

Width (m)	0 - 49	50 - 99	100 - 149	150 - 199
Frequency		41	25	36

What is the missing value?

36 ☐

41 ☐

42 ☐

25 ☐

YEAR 9 NUMERACY − TEST 2

P25

$$8 \div 0.2 =$$

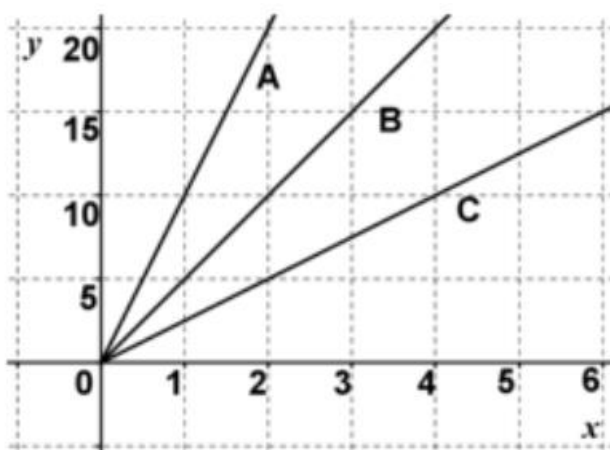| 4	70	40	25
☐	☐	☐	☐

P26

The graph shows the time taken in minutes (y axis) to lay floor tiles (x axis). A decorator takes 5 minutes to lay 2 floor tiles.

Which line shows this?
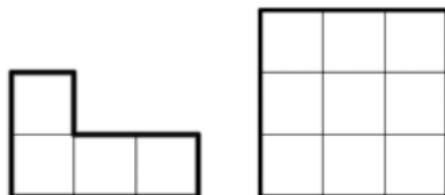

A	B	C	A and B
☐	☐	☐	☐

P27

What fraction of the larger shape is the smaller shape?

$\dfrac{7}{9}$	$\dfrac{2}{7}$	$\dfrac{2}{9}$	$\dfrac{9}{7}$
☐	☐	☐	☐

YEAR 9 NUMERACY – TEST 2

P28

What is one fifth of $1.50?

$0.30 ☐ $0.50 ☐ $0.20 ☐ $1 ☐

P29

Add 2 to $(-2x + 15)$

What is the answer?

15 ☐ $(-4x + 5)$ ☐ $(2x + 17)$ ☐ $(-2x + 17)$ ☐

P30

30% of $80 is

$24 ☐ $2.40 ☐ $8 ☐ $8.80 ☐

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Year 9

ANSWER SHEET

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Answer sheet

TEST 1	TEST 2
1. $x = 10$	P1. $y = 11$
2. 76.57, 76.57km	P2. 76.68, 76.68km
3. $24	P3. $100
4. 15 °C	P4. New York
5. 7	P5. 6
6. $16x^2 + 24x$	P6. $3x^2 - 2x = 20$
7. 15%	P7. 43.75%
8. 0.817	P8. $\frac{9}{20}$
9. $10	P9. $7
10. 11	P10. 2 x 3 + 8
11. 3	P11. 6
12. 52cm^2	P12. 40cm^2
13. Early	P13. 3 hours
14. 300 cm^3	P14. 17 centimetres
15. B	P15. A
16. 1.5	P16. 12mm
17. B	P17. B
18. 196.3	P18. 131.9mm
19. 420°	P19. 120°
20. 6000mm^3	P20. 0.16m^2
21. 197.92cm^3	P21. π x 3^2 x 2
22. 90%	P22. 90% and 62%
23. Could be 50 times	P23. 17
24. 131	P24. 25
25. 70	P25. 40
26. $15	P26. C
27. $\frac{7}{9}$	P27. $\frac{4}{9}$
28. $(30x + 20)$	P28. $0.30
29. $(30x + 20)$	P29. $(-2x + 17)$
30. $220	P30. $24