Assessment Test 2

1. This circle has been split into equal parts. What fraction has been shaded?

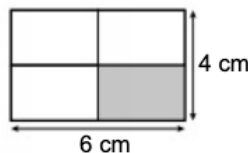   **A** ⅝ **B** ⅓ **C** ⁶⁄₉ **D** ⅜ **E** ⁶⁄₁₈

2. Which of the following is most likely to be the weight of a small can of baked beans?

   A 250 g **B** 2.5 kg **C** 2.5 g **D** 2500 g **E** 25 g

3. The diagram shows a rectangular flag. It is split into four equal rectangles. What is the area of the shaded rectangle?

   A 6 cm² **C** 12 cm² **E** 20 cm²

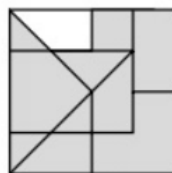   **B** 10 cm² **D** 24 cm²

   4 cm

   6 cm

4. Bill goes to a car rally. He keeps a note of the race times of the cars in minutes:

   122, 133, 142, 154, 122, 156, 134

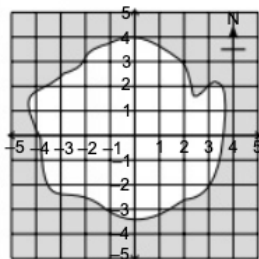   What is the difference between the longest race time and the shortest race time?

   Answer: _____ minutes

5. Tahsin is doing a shape puzzle. Which of the pieces below will complete the puzzle?

   A **B** **C** **D** **E**

6. The grid shows a small island. Adam goes for a walk starting at (–3, –2). He travels four squares north and two squares east. What are the coordinates of the point that he reaches?

   Answer: (___ , ___)

7. Which of these numbers is 21²?

   A 42 **B** 441 **C** 4410 **D** 4200 **E** 44110

8. Caley is counting the cars that pass in front of her house. Her sister has told her that for every seven cars she counts, she can expect three of them to be red. If Caley counts 63 cars, how many can she expect to be red? Answer: _____

9. What number is halfway between 45.6 and 45.9?

   A 45.75 **B** 45.80 **C** 45.65 **D** 45.85 **E** 45.70

10. Sarinder asked her classmates what their favourite pet was. She recorded her results in the pictogram. How many more people liked dogs than fish?
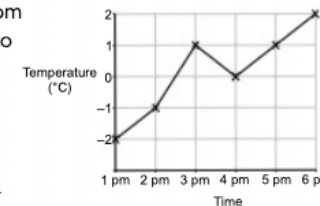
    Answer: _____

Cat	
Dog	
Fish	
Mouse	

    = 4 people

11. Which of these numbers does not divide into 90?

    A 2 **C** 5 **E** 9

    B 3 **D** 7

12. Mr Attenbar lives in the Arctic. He returned to his cabin at 1 pm and put the fire on. After a while he went outside and forgot to close the door behind him. He then came back in and closed the door again.

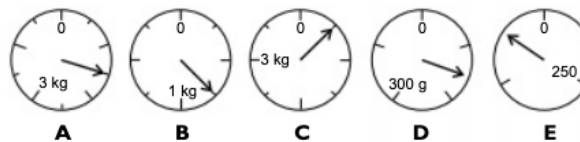   This graph shows the temperature inside the cabin. What time did he go outside? Answer: _____

13. The price of board games in a shop is shown in the table. Jack gives the shopkeeper £30.00 and gets 50p change. Which games did he buy?

Blocks	Trivia Time	Clueless	Scramble	Brainium
£12.50	£10.50	£6.50	£11.50	£9.50

    A Scramble, Blocks and Trivia Time **D** Scramble, Blocks and Clueless

    B Clueless, Brainium and Trivia Time **E** Scramble, Clueless and Trivia Time

    C Blocks, Clueless and Trivia Time

14. Which of these dials shows 750 g?

    A 3 kg **B** 1 kg **C** 3 kg **D** 300 g **E** 250 g

/ 7

/ 7

15. Where does the number 26 belong in this sorting table?

    A   top left hand box   D   bottom right hand box
    B   bottom left hand box   E   none of these
    C   top right hand box

	Even numbers	Odd numbers
Multiples of 3	18 12	3 15
Multiples of 7	28 14	7 49

16. 50 people were asked what colour their car was. 16 people said blue. What percentage of people did not say blue?

    Answer: _____%

17. Which of these calculations will give an odd number as the answer?

    A   113 × 115   C   436 × 812   E   672 + 998
    B   142 × 623   D   147 + 189

18. A scarf is 45 cm long. Jade buys 20 scarves.
    What is the total length of the scarves?

    A   90 m   B   600 cm   C   9 m   D   14 m   E   450 cm

19. The table shows the number of prizes won by Ester at Bingo in a week.

    Ester won 32 prizes altogether. How many prizes did she win on Thursday?

    Answer: _____

Day	Number of prizes
Monday	5
Tuesday	8
Wednesday	4
Thursday	
Friday	6

20. Harry paints a large flag on the side of his house. He uses 3 litres of red paint, 4 litres of blue paint and 5 litres of white paint. What percentage of the paint was red?

    Answer: _____%

21. Fiona arranges 6 equilateral triangles to make the shape shown. What is the size of the shaded angle?

    Answer: _____ °

22. Carrie buys 4 chocolate bars at 49p each, and 7 bags of peanuts at 29p each. How much does she spend in total?

    A   £1.96   B   £2.03   C   £3.99   D   £4.90   E   £4.10

23. Ten children in Class 6 were asked to give their favourite colour. The results are written in this list:
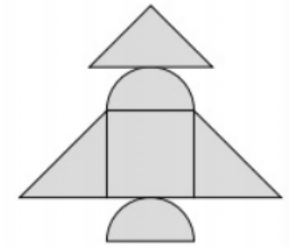
    red, blue, green, silver, purple, red, gold, gold, green, red

    What percentage of the children chose red as their favourite colour?

    Answer: _____%

    / 9

24. Lucy has some paper circles and some paper squares which she uses to make a rocket. She cuts some of the shapes in half. The squares have sides of 4 cm and the circles have areas of 10 cm². What is the area of her rocket?

    Answer: _____ cm²

25. Elsa has a bag of sweets containing 7 chocolate drops, 8 toffees and 3 liquorice laces.

    She takes out 2 sweets at random and eats them. They are both chocolate drops. What fraction of the remaining sweets are toffees?

    A   ⅜   B   ½   C   ¾   D   ⅕   E   ⁸⁄₁₈

26. Mrs Burton often catches the bus from her home into town. Sometimes she takes bus A, and sometimes she takes bus B. The first stop is outside her house and the last stop is in town. How long does the longest bus ride take?

    A   112 minutes   C   69 minutes   E   59 minutes
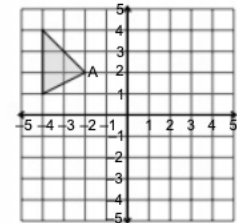   B   99 minutes   D   72 minutes

Bus A	Bus B
09:44	11:39
09:52	11:45
10:31	12:16
10:56	12:48

27. A plant grows 0.025 m every 6 months. It is 1.5 m tall. How many years will it take to reach 2 m?

    Answer: _____

28. Ben places a mirror on the y-axis of this graph. What are the coordinates of the reflected point A?

    A   (3, 2)   C   (1, 4)   E   (2, 2)
    B   (−2, −2)   D   (3, 0)

29. Which of the following statements is incorrect?

    A   8 divided by 4 is a prime number.   D   64 divided by 16 is a square number.
    B   3 multiplied by 44 is an odd number.   E 3^3 is greater than 5^2.
    C   2 added to 47 is a multiple of 7.

30. 40 girls and boys played in a football tournament. The number of goals and saves made during the tournament were recorded in the table.

    How many saves were made in total?
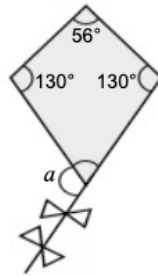
    Answer: _____

	Girls	Boys	Total
Goals		4	
Saves	14		
Total	24		44

31. Bernard is running from Land's End to John O'Groats. The distance is 874 miles. If he runs 25 miles a day, how many days will it take him to run the distance?

    A   36   B   27   C   32   D   35   E   26

    / 8

32. The diagram shows three of the angles on a kite.
What is the size of angle a?

Answer: _____ °

56°

130° 130°

a

33.

23 × 14 = 322

What is 46 × 140?

A 1288 **C** 64 400 **E** 12 888

B 3220 **D** 6440

34. Raj is buying 2 family tickets for a concert.
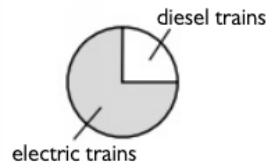How much does he spend?

Answer: £ _____

Concert Tickets
Adults   £3.50
Children   £1.50
20% discount for family ticket
(2 adults and 2 children)

35. Which of the following statements is true?

A $\frac{7}{100} > \frac{3}{4}$ **C** $\frac{7}{100} > 0.09$ **E** $0.65 < 0.09$

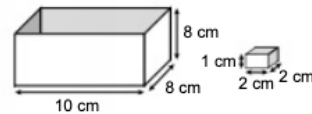**B** $\frac{7}{100} > 0.65$ **D** $0.65 < \frac{3}{4}$

36. Louis went train spotting.
He drew a pie chart to show how many diesel trains
and how many electric trains he saw.
What ratio of diesel trains to electric trains did he see?
Write your answer in its simplest form.

Answer: _____ : _____

diesel trains

electric trains

37. Bill has a packing box that measures 10 cm × 8 cm × 8 cm.
He fills it with matchboxes that measure 2 cm × 2 cm × 1 cm.
How many matchboxes can he fit in the packing box?
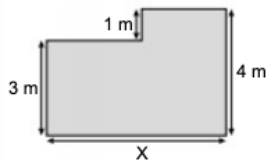
Answer: _____

8 cm
1 cm
8 cm   2 cm   2 cm
10 cm

38. A barrel contains 4 litres of water. There are 5 holes in the bottom
of the barrel, and each hole loses 80 ml of water each hour.
How many hours will it take for the barrel to completely empty?

A 9 hours **B** 10 hours **C** 11 hours **D** 12 hours **E** 13 hours

39. Yohan joined two rectangles together to make this shape.
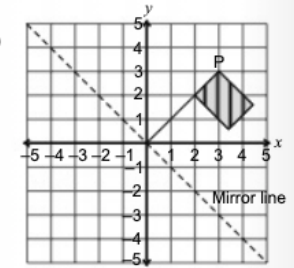The perimeter of the shape is 21 metres. What is the length of X?

Answer: _____ m

1 m
3 m   4 m
X

40. A sequence is described by the rule $3n^2 + 1$.
What are the first two terms in the sequence?

A 1, 3 **B** 4, 13 **C** 7, 13 **D** 10, 37 **E** 4, 7

/ 9

41. This flag is reflected across the mirror line shown.
What will be the new coordinates of point P?   Answer: (___ , ___)

P
Mirror line

42. Mark has 3 cubes of cheese with sides of 2 cm. A mouse eats
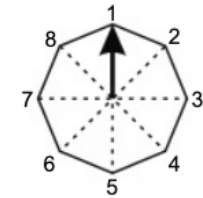12 cm³ of the cheese. What volume of cheese does Mark have left?

Answer: _____ cm³

43. Lemone is opening up a plant stall in the market. She buys the
stall (S) and boxes of cactus plants (C) to sell. Each box
contains 12 cactus plants and Lemone buys 60 cactus plants altogether.
Which expression shows the total cost?

A $12SC$ **B** $S + 5C$ **C** $SC + 12$ **D** $5SC$ **E** $S + 60C$

44. The arrow on the spinner is pointing at number 1.
Charlotte spins the arrow round 315° anti-clockwise.
Which number is the arrow pointing at now?

Answer: _____

1
8   2
7   3
6   4
5

45. Which expression gives the nth term of this sequence?
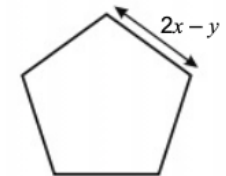
$$-1, -1, -1, -1, -1$$

A $2n - 3$ **C** $n^2 - n$ **E** $(n - 1)^2$

B $n - 1$ **D** $n - (n + 1)$

46. Duncan has £2.73. He has the same number of 2p and 1p coins,
and these are the only coins that he has. How many 1p coins
does he have?

Answer: _____

47. The diagram shows a regular pentagon. Which of the following
is an expression for the perimeter of the pentagon?

A $8x - 4y$ **C** $5x - 5y$ **E** $2x + 5y$

B $(2x - y) + 5$ **D** $10x - 5y$

$2x - y$

48. There are 22 children and 7 adults at a party. Sherrie cooks 3 sausage rolls
for each child and 5 sausage rolls for each adult. If the sausage rolls come
in packets of 25, how many packets will Sherrie need to buy?

Answer: _____

49. Moses is tiling his rectangular bathroom floor. Each tile is 0.04 m²
and he uses 100 whole tiles to cover the entire floor. If the width
of his bathroom is 1 m, what is the length of his bathroom?

A 2 m **B** 4 m **C** 7 m **D** 5 m **E** 6 m

50. Which of these expressions equals $3x + 18y$?

A $3(6xy)$ **C** $21x - 3y$ **E** $2x + x + 3y^2$

B $6(x + 3y)$ **D** $3(x + 6y)$

/ 10

End of Test

Assessment Test 2

Pages 49-54

1) D
There are 8 segments and 3 are shaded. This is the fraction $^3/_8$.

2) A
A small can of beans weighs around 250 g.
All of the other weights are either too small or too large.

3) A
You can work out the area of a rectangle by length × width.
So, the area of the flag is 6 × 4 = 24 cm². The flag is split into 4 equal rectangles, so the area of the shaded rectangle is 24 ÷ 4 = 6 cm².

4) 34 minutes
The fastest time was 156 minutes and the slowest time was 122 minutes. 156 − 122 = 34.

5) B
You need to find the piece that is the right size to fit in the gap. Shape B has been rotated by 180° but is the only shape that can fit in the gap.

6) (−1, 2)
Four squares north takes Adam to (−3, 2). Two squares east takes him to his finishing point at (−1, 2).

7) B
212 is 21 × 21. You can estimate the answer by rounding the numbers to the nearest 10 and working out 20 × 20.
20 × 20 = 400. The only realistic option is B — 441.

8) 27
63 cars is 9 lots of 7 cars. Out of each 7 cars, Caley can expect 3 to be red. This means she can expect 9 × 3 = 27 cars to be red.

9) A
The difference between 45.6 and 45.9 is 45.9 − 45.6 = 0.3.
0.3 ÷ 2 = 0.15 so the halfway point between the two numbers will be 45.6 + 0.15 = 45.75.

10) 6
Dogs have 2$^1/_2$ symbols and fish have 1 symbol so the difference between them is 1$^1/_2$ symbols. Each symbol in the pictogram is equal to 4 people. So, half of a symbol is 4 ÷ 2 = 2 people.
1$^1/_2$ symbols is equal to 4 people + 2 people = 6 people.

11) D
90 can be divided by 2 because 90 is an even number. The digits in 90 add up to a multiple of 3 (9 + 0 = 9) so it can be divided by 3. If a number ends in a 5 or 0 it can be divided by 5, so 90 can be divided by 5. 9 × 10 = 90 so 90 can be divided by 9. That leaves 7 — 90 can't be divided by 7.

12) 3 pm
The graph shows a rise in temperature until 3 pm when it starts to drop again. This is when he went outside and left the door open.

13) C
Add the prices of the sets of three board games together. You need to find the option that adds up to £29.50 (£30.00 − £0.50 = £29.50). This is easiest if you split the numbers and add the pounds and pence separately.
£12.50 (Blocks) + £6.50 (Clueless) + £10.50 (Trivia Time)
= (£12 + £10 + £6) + (£0.50 + £0.50 + £0.50)
= £28 + £1.50 = £29.50.

14) B
For B, the dial is split into 8 parts and 1 kg is at the 4th point, halfway round the scale. This means that each point on the scale represents 1 kg ÷ 4 = 250 g. As the arrow is pointing at the 3rd point, it is pointing at 3 × 250 g = 750 g.

15) E
The number 26 is an even number, but it isn't a multiple of 3 or a multiple of 7, so it can't be placed in the sorting table.

16) 68%
To find a percentage you need to get a fraction out of 100.
$^{16}/_{50}$ people had a blue car and when you multiply the numerator and denominator in $^{16}/_{50}$ by 2 you get $^{32}/_{100}$. $^{32}/_{100}$ = 32%.
The percentage of people who didn't have a blue car is 100 − 32 = 68%.

17) A
When you multiply two odd numbers together you always make an odd number. So, 113 × 115 will give an odd number as the answer.

18) C
To find the length of 20 scarves you need to multiply 45 cm by 20. 45 × 20 = 900 cm.
There are 100 cm in 1 m, so 900 cm = 9 m.

19) 9
Ester won 32 prizes altogether so subtract the number she won on the other days from 32 to find the number she won on Thursday:
32 − 5 − 4 − 8 − 6 = 9.

20) 25%
The total amount of paint used by Harry is 3 + 4 + 5 = 12 litres. 3 litres of this was red paint, so the fraction of red paint used is $^3/_{12}$. $^3/_{12}$ is simplified to $^1/_4$ by dividing the numerator and denominator by 3, and $^1/_4$ = 25% (25% × 4 = 100%).

21) 120°
Each angle in an equilateral triangle is 60°. The shaded angle is made up of the angles from two equilateral triangles so it is 60 + 60 = 120°.

22) C
Round up 49p to 50p and 29p to 30p to make the calculations easier. Carrie bought 4 chocolate bars so the approximate price of these is 4 × 50p = £2. She bought 7 bags of peanuts so the approximate price of these is 7 × 30p = £2.10. £2 + £2.10 = £4.10. You rounded each item up by 1p and there were 11 items in total (4 + 7 = 11) so subtract 11p to find the exact total cost: £4.10 − 11p = £3.99.

23) 30%
There are 10 results in the list, and 3 of these are red.
So $^3/_{10}$ of the children chose red as their favourite colour.
As a percentage, this is 30%.

24) 50 cm²
The area of each square is length × width = 4 × 4 = 16 cm².
The area of $^1/_2$ a square = 16 ÷ 2 = 8 cm².
1 whole square + 3 halves = 16 + 8 + 8 + 8 = 40 cm².
She uses $^1/_2$ of a circle for the base and $^1/_2$ of a circle for the nose, so 1 circle in total. The total area of the circle is 10 cm².
So, the total area is 40 + 10 = 50 cm².

25) B
Elsa has 7 + 8 + 3 = 18 sweets to start with. She eats 2 chocolate drops so there are 16 sweets left (18 − 2 = 16). There are still 8 toffees left, so the fraction of toffees is $^8/_{16}$. $^8/_{16}$ = $^1/_2$.
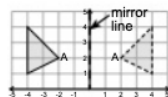
26) D
Work out the length of time that the journey takes on each bus. On Bus A the journey takes 9:44 to 10: 44 = 60 minutes plus 10:44 to 10:56 = 12 minutes. 60 + 12 = 72 minutes.
On Bus B the journey takes 11:39 to 12:39 = 60 minutes plus 12:39 to 12:48 = 9 minutes. 60 + 9 = 69 minutes.
The journey on Bus A is longer, so the longest time is 72 minutes.

27) 10 years
The plant needs to grow 0.5 m (2 − 1.5 = 0.5). It grows 0.025 m in 6 months. There are 12 months in a year so it will grow 0.025 × 2 = 0.05 m in a year. 0.5 m ÷ 0.05 m = 10, so it'll take the plant 10 years to grow 0.5 m.

28) E
The y-axis is the vertical axis so the coordinates of the reflected point A are (2, 2) (see the diagram).

29) B
3 × 44 = 132 which is an even number so option B is incorrect.
All of the other statements are true.

30) 30

	Girls	Boys	Total
Goals		4	
Saves	14	= (20 − 4) = 16	= (16 + 14) = **30**
Total	24	= (44 − 24) = 20	44

The table shows how to find the total number of saves. Start by working out the boys' total goals and saves (20). Then use this to find the number of the boys' saves (16). Add this to the girls' saves to find the total number of saves (30).

31) D
25 × 4 = 100, so it takes 4 days to run 100 miles. The number of days to run 800 miles will be 4 × 8 = 32 days. This leaves 74 miles left over. 25 × 3 = 75 so it'll take 3 days to complete the last 74 miles. 32 days + 3 days = 35 days.

32) 136°
A kite is a quadrilateral so the angles in a kite add up 360°. This means that the angle next to angle *a* is 360 − 130 − 130 − 56 = 44°. Angles on a straight line add up to 180°, so angle *a* is 180 − 44 = 136°.

33) D
46 is 23 doubled, so 46 × 14 will be 23 × 14 doubled.
So 46 × 14 = 322 × 2 = 644. 140 is 10 times larger than 14, so 46 × 140 = 644 × 10 = 6440.

34) £16.00
The cost of tickets for 2 adults and 2 children is £3.50 + £3.50 + £1.50 + £1.50 = £10.00. A family ticket is 20% cheaper — 10% of £10 is £1 so 20% is £2. So a family ticket is £10 − £2 = £8. Raj is buying two family tickets so the total cost is 8 × 2 = £16.

35) D
Look at each statement and decide if it's true:
A: $^3/_4$ = $^{75}/_{100}$, so $^7/_{100}$ is not greater than $^3/_4$.
B: $^7/_{100}$ = 0.07, so $^7/_{100}$ is not greater than 0.65.
C: $^7/_{100}$ = 0.07, so $^7/_{100}$ is not greater than 0.09.
D: $^3/_4$ = 0.75, so 0.65 is less than $^3/_4$.
E: 0.65 is greater than 0.09.

36) 1 : 3
He saw 3 times as many electric trains as diesel trains. So the ratio of diesel trains : electric trains is 1 : 3.

37) 160
The number of matchboxes that can fit along the length of the packing box is 10 ÷ 2 = 5. The number that can fit across the width is 8 ÷ 2 = 4 and the number that can fit up the height is 8 ÷ 1 = 8. So, the total number of matchboxes that can fit in the packing box is 5 × 4 × 8 = 20 × 8 = 160.

38) B
Start by making sure everything is in the same units — there were 4 litres of water, so change this to millilitres by multiplying by 1000: 4 × 1000 = 4000 ml. There are 5 holes each losing 80 ml each hour, so the amount of water being lost each hour is 5 × 80 = 400 ml. Divide the total volume of water (4000) by the amount being lost each hour (400) to find the number of hours it'll take to empty: 4000 ÷ 400 = 10 hours.
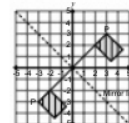
39) 6.5 m
The vertical sides of the shape measure 1 + 3 + 4 = 8 m.
So, the total of the horizontal sides of the shape is 21 − 8 = 13 m. As the shape is a rectangle, the bottom side is half of this, so the length of X (the bottom) is 13 ÷ 2 = 6.5 m.

40) B
n is the number of the term. To find the first term, substitute 1 for *n* (remember to follow BODMAS):
3 × 1 + 1 = 3 × 1 + 1 = 3 + 1 = 4. To find the second term, *n* is 2: 3 × 2 + 1 = 3 × 4 + 1 = 12 + 1 = 13.

41) (−3, −3)
The diagram shows the flag when it has been reflected in the mirror line. The coordinates of point P are now (−3, −3).

42) 12 cm³
The volume of each cube of cheese is 2 × 2 × 2 = 8 cm³.
There are 3 cubes of cheese, so the total volume of cheese is 8 × 3 = 24 cm³. The mouse eats 12 cm³ of cheese, so the amount left is 24 − 12 = 12 cm³.

43) B
The cactus plants come in boxes of 12 and Lemone needs 60 plants so she needs 60 ÷ 12 = 5 boxes. The cost of 5 boxes is shown in the expression as 5C. She needs to add this to the cost of the stall, S, so the complete expression is S + 5C.

44) 2
The total angle around the point at the centre of the spinner is 360° and there are 8 segments, so the size of each segment is 360 ÷ 8 = 45°. 360 − 45 = 315° so the arrow is being turned in an anti-clockwise direction through 7 segments (8 − 1 = 7) which will leave it pointing at number 2.

45) D
n is the number of the term. Test each expression by substituting *n* with at least 3 different values. E.g for option D: *n* − (*n* + 1):
When *n* is 1: 1 − (1 + 1) = 1 − 2 = −1.
When *n* is 2: 2 − (2 + 1) = 2 − 3 = −1.
When *n* is 3: 3 − (3 + 1) = 3 − 4 = −1.
So *n* − (*n* + 1) is the correct expression.

46) 91
£2.73 is made up evenly of 2p and 1p coins. 1p out of every 3p is a 1p coin, so $^1/_3$ of the coins are 1p coins. £2.73 is 273p and $^1/_3$ of 273 is 273 ÷ 3 = 91. So, 91 coins are 1p coins.

47) D
The regular pentagon has 5 sides that are all 2x − y.
5(2x − y) = 2x − y + 2x − y + 2x − y + 2x − y + 2x − y
= 10x − 5y.

48) 5
The number of sausage rolls eaten by the children is 22 × 3 = 66 and the number eaten by the adults is 7 × 5 = 35. So the total number of sausage rolls eaten is 66 + 35 = 101. The sausage rolls come in packets of 25. 4 × 25 = 100 so Sherrie will need to buy 5 packets to have 101 sausage rolls.

49) B
The area of each tile is 0.04 m² and Moses uses 100 tiles to cover the floor, so the total area of the bathroom is 100 × 0.04 = 4 m². The area of the bathroom is calculated using length × width, so area ÷ width = length: 4 ÷ 1 = 4 m.

50) D
3(x + 6y) means: x + 6y + x + 6y + x + 6y = 3x + 18y.