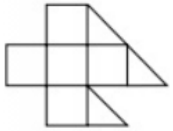
Assessment Test 3

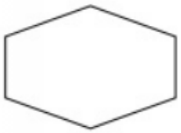
1. Each of the small squares in the shape on the right has an area of 1 cm^2.



What is the total area of the shape?

Answer: _____ cm^2

2. How many lines of symmetry does the hexagon on the right have?



A 1 **B** 2 **C** 3 **D** 4 **E** 6

3. Which unit is most suitable for measuring the length of a football pitch?

A centimetres **B** millimetres **C** metres **D** kilometres **E** litres

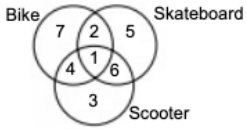
4. Elsa counts the vehicles that pass her school during her lunchtime. The pictogram shows her results.

Vehicle type	Number of vehicles
Car	□ □ □ □
Van	□ ▫
Bus	□ ◪
Taxi	□ □ □ ▬

□ = 4

How many buses did she see? Answer: _____

5. The Venn diagram on the right shows how many children in a class have bikes, skateboards and scooters.



How many children have a skateboard and a scooter, but not a bike?

Answer: _____

6. Maddy buys a tomato salad, some coleslaw and a jacket potato.

Salad bar	
Coleslaw	25p
Green salad	80p
Tomato salad	40p
Rice salad	50p
Potato salad	45p
Jacket potato	99p
Rice	85p

How much change will she receive from a £5 note?

A £1.64 **B** £2.16 **C** £3.36 **D** £33.60 **E** £3.63

7. Which of the following times is the same as 13:45?

A 1:45 pm **B** 2:45 am **C** 1:45 am **D** 3:45 pm **E** 2:45 pm

8. Sasha starts her homework at 4:20 pm. She can stop and go to visit her friend when she has done 1¾ hours of homework.

What time can she visit her friend? Answer: _____ pm

9. What is 9.45 ÷ 1.5?

A 3.6 **B** 14.175 **C** 630 **D** 6.3 **E** 63

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10. Which is the most likely mass of a tin of soup?

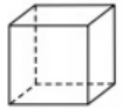
A 0.4 g **B** 400 g **C** 40 kg **D** 4 kg **E** 4 g

11. This chart shows the number of boys and girls in each year group in a school.
How many children are in the biggest year group?

Year Group	Boys	Girls
3	49	50
4	52	56
5	55	57
6	54	59
7	10	20

Answer: _____

12. What is the sum of the numbers of faces, edges and vertices of a cube?



Answer: _____

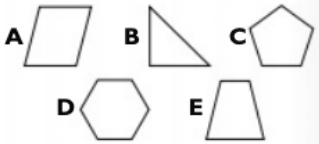
13. 90 × 80 = 7200

What is 90 × 0.08? Answer: _____

14. 1.75 pints = 1 litre. How many pint bottles would you need to hold 6 litres of water?

Answer: _____

15. Which of the shapes on the right has exactly one pair of parallel sides?



Answer: _____

16. Ben makes this pattern by repeating three shapes over and over again.
How many hearts will there be in the first 20 shapes?

A 6 **B** 7 **C** 3 **D** 8 **E** 4

17. A group of children have a competition to see who is fastest at running from one end of the playground to the other.

Name	Time
Betsy	4 mins 18 secs
Cara	3 mins 59 secs
Ian	4 mins 2 secs
Sian	4 mins 20 secs
Tony	4 mins 27 secs

The results are shown in the table on the right.
Who came second?

Answer: _____

18. Ian buys 6 sandwiches costing £1.99 each and 3 drinks costing 49p each.

He does this calculation to estimate the cost: 6 × £2 + 3 × £0.50
How does his estimate differ from the exact cost?

A £12 too much **B** 9p too much **C** 12p too little **D** 9p too little **E** 6p too much

19. 349 × 84 = 29 316

What is 349 × 42?

A 7329 **B** 146 580 **C** 17 264 **D** 58 632 **E** 14 658

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20. What fraction of the faces on a fair, six-sided dice show prime numbers?

A $\frac{1}{2}$ **B** $\frac{5}{6}$ **C** $\frac{4}{6}$ **D** $\frac{1}{3}$ **E** $\frac{2}{3}$

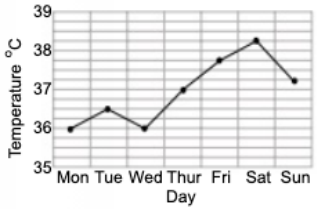
21. Look at these fractions.

$\frac{7}{20}$ $\frac{3}{4}$ $\frac{1}{5}$ $\frac{3}{20}$ $\frac{5}{20}$

Which of the following shows them arranged from smallest to largest?

A $\frac{3}{20}$, $\frac{1}{5}$, $\frac{5}{20}$, $\frac{3}{4}$, $\frac{7}{20}$
B $\frac{3}{20}$, $\frac{1}{5}$, $\frac{5}{20}$, $\frac{7}{20}$, $\frac{3}{4}$
C $\frac{3}{20}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{5}{20}$, $\frac{7}{20}$
D $\frac{3}{4}$, $\frac{7}{20}$, $\frac{5}{20}$, $\frac{1}{5}$, $\frac{3}{20}$
E $\frac{1}{5}$, $\frac{3}{20}$, $\frac{5}{20}$, $\frac{7}{20}$, $\frac{3}{4}$

22. The temperature of a patient at 9 am each day was recorded and plotted on a graph.



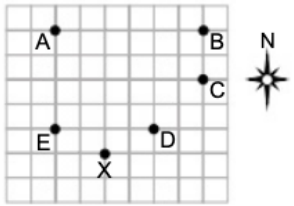
What is the difference between the highest and the lowest temperatures?

Answer: _____ °C

23. Sue's car uses 5 full tanks of petrol to travel 2985 miles.
How many miles can she travel on one full tank of petrol?

Answer: _____ miles

24. Jenny is standing facing north at the point marked X on the grid.



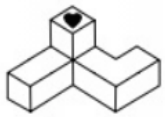
She moves 3 units forward, then makes an anticlockwise turn through 135°. Which letter is she now facing?

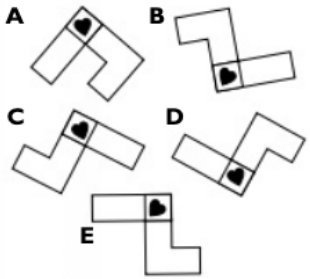
Answer: _____

25. Which number should go in the circle to make this equation correct?

$4 \times 56 + \bigcirc \times 56 = 560$ Answer: _____

26. Which diagram on the right shows how this 3-dimensional shape would look when viewed from directly above?





Answer: _____

27. John thinks of a number. He multiplies it by 11 and subtracts 9.
The answer he gets is 112.

What number did he start with? Answer: _____

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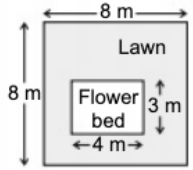
28. This table shows the number of awards each class were given.
What is the mean number of awards?

Class	6A	6B	6C	6D	6E	6F
Number of awards	16	16	11	17	12	12

Answer: _____

29. The diagram shows a garden with a flower bed.
What is the area of the lawn?

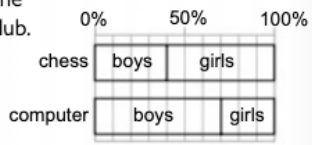


Answer: _____ m^2

30. Luke started at –5 and counted up in steps of 1.5.
Which of the following numbers did he count?

A –1 **B** 0 **C** 2 **D** 3 **E** 4

31. The chart on the right shows the proportions of boys and girls in the chess club and the computer club. There are 30 children in each club.



How many more boys than girls are there in the computer club?

Answer: _____

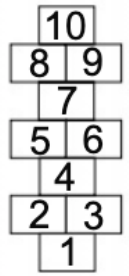
32. Sarah has run a total distance of 168 km over a 12 week period.
How far does she run each day if she runs the same distance each day?

Answer: _____ km

33. On Saturday April 23rd, Claire's father tells her that it is 6 weeks until they go on holiday. They are going on holiday on a Saturday.
What date will this be?

A 1st June **B** 2nd June **C** 3rd June **D** 4th June **E** 5th June

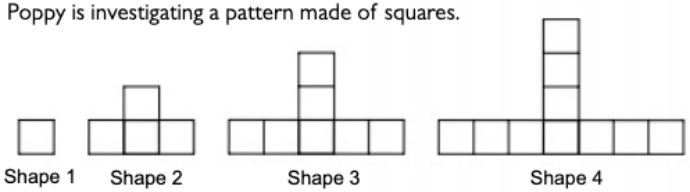
34. On the right is a hopscotch grid. The sum of the numbers on the grid is 55.



The grid is extended so that the greatest number at the top of the grid is 20.
What is the sum of all the numbers on the grid?

Answer: _____

35. Poppy is investigating a pattern made of squares.



How many squares will be in the shape 11 of the pattern?

Answer: _____

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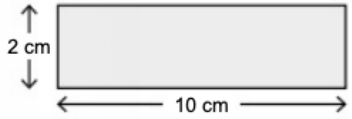
36. Caleb pours $\frac{2}{5}$ of a litre of water out of a full 10 litre bucket.
How many millilitres are left in the bucket?

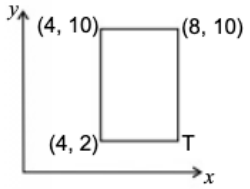
A 960 ml **B** 9600 ml **C** 96 ml **D** 6000 ml **E** 4000 ml

37. The rectangle on the right is enlarged by a scale factor of 2.
What is the area of the enlarged rectangle?



Answer: _____ cm^2

38. The diagram shows the coordinates of three corners of a rectangle.
What are the coordinates of corner T?



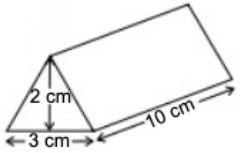
Answer: (____,____)

39. A school holds a concert. There are 42 rows of 48 seats.
How many seats are there?

Answer: _____

40. Volume of a triangular prism = area of triangular side × length

What is the volume of this triangular prism?



Answer: _____ cm^3

41. Which number is exactly half-way between 4.19 and 3.81?

A 4.1 **B** 4 **C** 3.9 **D** 3.09 **E** 4.09

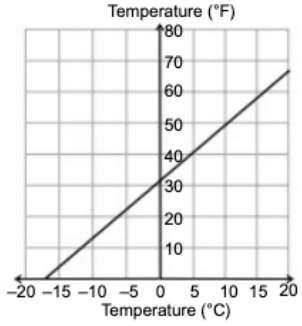
42. The perimeter of a rectangular floor tile is 128 cm.
The tile is three times as long as it is wide. What is its length?

Answer: _____ cm

43. Sleeping bags are given a rating to show the minimum temperature they can be used at:

Sleeping bag rating	1	2	3	4	5
Minimum temperature (°C)	5	0	–5	–10	–15

Adam needs to buy a sleeping bag that he can use at 25 °F.
The graph on the right can be used to change a temperature in °F to a temperature in °C.



What is the lowest rating of sleeping bag Adam can buy?

Answer: _____

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44. The ages in months of four out of the six babies at a clinic are given below.

6	3	8	2

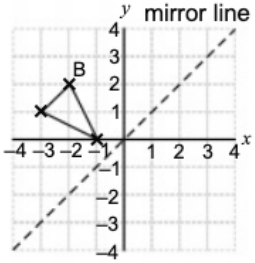
The mean age of the six babies is 5 months.
Which of the following could be the ages in months of the fifth and sixth babies? Circle the correct answer.

A 8 and 12 **B** 1 and 2 **C** 2 and 8 **D** 6 and 5 **E** 3 and 4

45. How many degrees does the minute hand on a clock turn through between 12 noon and 10:30 pm?

A 3160° **B** 3780° **C** 2300° **D** 2430° **E** 3600°

46. The shape on the grid is reflected in the mirror line.
What are the new coordinates of point B?



Answer: (____,____)

47. A printer uses the following formula to work out the cost, C, in pounds, of printing m leaflets:

$$C = 15(m \div 100) + 5.$$

How much will it cost to have 300 leaflets printed?

Answer: £ _____

48. James records the weather for 20 days. He draws a pie chart of his results.
It was foggy for 3 days. What size angle should he draw to represent this?

A 90° **B** 54° **C** 36° **D** 45° **E** 180°

49. Rashid gets £2.50 pocket money each week. He is given an extra 30% pocket money if he cleans the family car.

How much money will he receive over 3 weeks if he cleans the car each week?

Answer: £ _____

50. Russell wins £500 in a prize draw.
He spends £260 on a new computer, and decides to buy some games that cost £39.99 each.

Which expression gives the amount of money Russell will have left if he buys n games?

A $240n$
B $500 - 260n$
C $240 + 39.99n$
D $240 - 39.99n$
E $500 - 39.99n$

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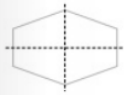
Assessment Test 3

Pages 55-60

1) 6.5 cm²
The area of a whole square is 1 cm², so the area of half a square is 0.5 cm². There are 5 whole squares with an area of 5 × 1 cm² = 5 cm², and 3 half squares with an area of 3 × 0.5 cm² = 1.5 cm², so the total area is 5 + 1.5 = 6.5 cm².

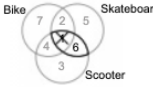
2) B
There are two lines of symmetry:



3) C
Litres is not a unit of length. Centimetres and millimetres are too small. Kilometres are too big. So metres is the most suitable unit.

4) 7
Each rectangle represents 4 vehicles, so $\frac{1}{4}$ of a rectangle represents 1 vehicle. There are $1\frac{3}{4}$ rectangles for the buses. This is equivalent to 4 buses for the whole rectangle and 3 buses for the $\frac{3}{4}$ rectangle. 3 + 4 = 7 buses.

5) 6
The children with a skateboard and a scooter are shown in the overlap of the skateboard and scooter circles. The 1 child in the middle section also has a bike, so you don't want to count that one.



6) C
Total up the 3 items Maddy chose and subtract the total from £5.00. 40p + 25p + 99p = £1.64 (to add on 99p, add on £1 and subtract 1p) £5.00 − £1.64 = £3.36.

7) A
To convert from the 24-hour clock to the 12-hour clock subtract 12 from the hours, in this case, 13. 13 − 12 = 1. In the 24 hour clock, if the number of hours is greater than 12, the time is pm.
So the answer is 1:45 pm.

8) 6:05 pm
$1\frac{3}{4}$ hours = 1 hour 45 mins. Count on 1 hour and 45 mins from 4:20 pm. One hour later than 4:20 pm is 5:20 pm, 40 minutes later than 5:20 pm is 6:00 pm, 5 minutes later than 6:00 pm is 6:05 pm. Alternatively, $1\frac{3}{4}$ hours is 15 minutes less than 2 hours. So you could add on 2 hours and then subtract 15 minutes.

9) D
It is difficult to divide 9.45 by 1.5, so round it down to 9.
There are 6 × 1.5 in 9, so the answer must be about 6 — D is the only possible answer.

10) B
400 g is the only sensible answer. 4 kg and 40 kg are too big. 4 g and 0.4 g are too small.

11) 113
Add up the number of boys and girls in each year group.
Year 3: 49 + 50 = 99
Year 4: 52 + 56 = 108
Year 5: 55 + 57 = 112
Year 6: 54 + 59 = 113
Year 7: 10 + 20 = 30
Year 6 is the biggest year group and has 113 children.

12) 26
A cube has 6 faces, 12 edges and 8 vertices (corners).
6 + 12 + 8 = 26. If you don't know these, you could count them on the diagram in the question.

13) 7.2
0.08 is 1000 times smaller than 80, so 90 × 0.08 will be 1000 times smaller than 90 × 80. 90 × 80 = 7200,
so 90 × 0.08 = 7200 ÷ 1000 = 7.2

14) 11
1.75 pints = 1 litre, so 6 litres = 1.75 pints × 6. Split the calculation u to make it easier. 2 litres = 2 × 1.75 = 3.5 pints.
6 litres = 3 × 2 litres, so 6 litres = 3.5 × 3 = 10.5 pints.
So you'd need 11 bottles.

15) E
E (a trapezium) is the only shape with one pair of parallel sides (the top and bottom). A and D have more than one pair of parallel sides B and C have no parallel sides.

16) B
The pattern is made up of a set of three shapes that repeat.
3 × 6 = 18, so there will be 6 full sets of the shapes, plus another two that make up the first 20 shapes. The heart is the 1st shape in the pattern, so shape 19 will be a heart. So there will be 6 + 1 = 7 hear

17) Ian
The fastest time is the smallest number. Cara was fastest with a time of 3 mins 59 secs. Ian came second with a time of 4 mins 2 secs.

18) B
Ian has rounded each item up by 1p.
There are 9 items, so his estimate will be 9p too much.

19) E
42 is half of 84, so 349 × 42 will be half of 29 316. 29 316 is just under 30 000, so the answer should be just under half of this, around 15 000. Option E is the only possible option.

20) A
The prime numbers shown on the dice are 2, 3, and 5.
This is 3 out of the 6 numbers, so the fraction must be $\frac{3}{6} = \frac{1}{2}$.

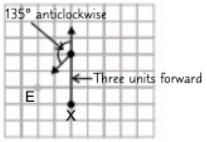
21) B
Convert all the fractions to twentieths so they're easier to put in orde
$\frac{3}{4} = \frac{15}{20}$ (Multiply the numerator and denominator by 5.)
$\frac{1}{5} = \frac{4}{20}$ (Multiply the numerator and denominator by 4.)
The other three fractions are already in twentieths. In order from smallest to largest, the fractions are: $\frac{3}{20}, \frac{4}{20}, \frac{5}{20}, \frac{7}{20}, \frac{15}{20}$.
Convert the fractions back to their original form to give:
$\frac{3}{20}, \frac{1}{5}, \frac{5}{20}, \frac{7}{20}, \frac{3}{4}$

22) 2.25 °C
The highest temperature was 38.25 °C on Saturday.
The lowest temperature was 36 °C on Monday and Wednesday.
So the difference = 38.25 − 36 = 2.25 °C.

23) 597 miles
If Sue can travel 2985 miles on 5 tanks, she can travel 2985 ÷ 5 miles on 1 tank:

$$5\overline{)2\,9\,^{4}8\,^{3}5} \quad 5\,9\,7$$

24) E
The map below shows Jenny's movements. Remember — 90° is a right angle, so 135° is one and a half right angles (90° + 45°).



25) 6
Two different numbers are multiplied by 56, then added together to make 560. 560 is the same as 56 × 10.
You already know that part of the calculation is 4 × 56, so to get 560 the other part must be 6 × 56 (6 + 4 = 10).
(4 × 56) + (6 × 56) = 10 × 56 = 560.

26) E
You need to imagine spinning the shape round to different positions. This question is easier if you rotate the page so that the cube with the heart is at the top each time.

27) 11
To find the answer you need to work backwards from 112.
You're told that 9 was subtracted from a number to make 112 — which must mean that the number was 121 (112 + 9 = 121).
To reach 121 the original number was multiplied by 11. So you need to divide 121 by 11 to find the original number: 121 ÷ 11 = 11.

28) 14
To calculate the mean, add all numbers together and divide by the number of classes (6).
Mean = (16 + 16 + 11 + 17 + 12 + 12) ÷ 6 = 84 ÷ 6 = 14

29) 52 m²
First find the area of the whole garden, then subtract the area of the flower bed. This gives you the lawn area.
Garden = 8 × 8 = 64 m²
Flower bed = 4 × 3 = 12 m²
Lawn = 64 − 12 = 52 m²

30) E
Count up from −5 in steps of 1.5 until you land on one of the answer choices. −5, −3.5, −2, −0.5, 1, 2.5, 4 (which is E)

31) 12
From the chart, you can see that 70% of children in the computer club are boys. There are 30 children in the club, so find 70% of 30.
10% of 30 = 30 ÷ 10 = 3 so 70% = 7 × 10% = 7 × 3 = 21.
There must be 30 − 21 = 9 girls.
So there are 21 − 9 = 12 more boys than girls.

32) 2 km
Sarah runs on 7 × 12 = 84 days
Each day she runs 168 ÷ 84 = 2 km.

33) D
There are seven days in one week. Count on six lots of seven from 23rd April. There are 30 days in April and 31 in May.
30th April, 7th May, 14th May, 21st May, 28th May, 4th June.

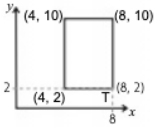
34) 210
The calculation is easier if you recognise that
11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20 is the same as
(1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10) + (10 × 10).
So the total = 55 + 55 + 100 = 210

35) 31
You could do this question by predicting what the 11th shape will look like and counting the squares. Shape 11 will have a vertical strip of 11 squares, and the horizontal strips sticking out the sides will be 10 squares long each. The total number of squares will be 11 + 10 + 10 = 31. Alternatively, you could say that the number of squares increases by 3 each time. There are 10 squares in Shape 4, and Shape 11 is 7 shapes further on. So Shape 11 will have 7 × 3 = 21 more squares than Shape 4. This means it has 10 + 21 = 31 in total.

36) B
There are 1000 ml in 1 litre, so in 10 litres, there are 10 000 ml. $\frac{2}{5}$ of a litre = $\frac{2}{5}$ × 1000 ml
= (1000 × 2) ÷ 5 = 2000 ÷ 5 = 400 ml.
So the amount left in the bucket = 10 000 − 400 = 9600 ml

37) 80 cm²
Find the side lengths of the enlarged rectangle by multiplying the old lengths by the scale factor: 2 × 2 = 4 cm, 2 × 10 = 20 cm.
Then multiply the side lengths to find the area: 4 × 20 = 80 cm².

38) (8, 2)
Point T is directly below the point (8, 10) so it will have the same x-coordinate (8). Point T is directly to the right of the point (4, 2) so it will have the same y-coordinate (2). So, the coordinates of point T are (8, 2).



39) 2016
Find the total number of seats (42 × 48):

$$\begin{array}{r} {}^{1}48 \\ \times\ 42 \\ \hline 1920 \\ +\ {}^{3}96\,{}^{1}0 \\ \hline 2016 \\ {\scriptstyle 1\ 1} \end{array}$$

40) 30 cm³
The area of the triangular side
= $\frac{1}{2}$ × base × height = $\frac{1}{2}$ × 3 × 2 = 3 cm².
Volume = area of triangular side × length = 3 × 10 = 30 cm³

41) B
Add the numbers together and divide by 2 to find the value half way between them. 4.19 + 3.81 = 8. 8 ÷ 2 = 4.

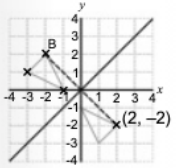
42) 48 cm
The perimeter of a rectangle is made up of 2 lengths and 2 widths.
So 1 length + 1 width = half the perimeter = 128 ÷ 2 = 64 cm.
The length is 3 times as long as the width so the width × 4 = 64 cm.
So the width is 64 ÷ 4 = 16 cm. Multiply the width by 3 to find the length: 16 × 3 = 48cm.

43) 3
Read off how many °C is the same as 25 °F from the graph — it's approximately −4 °C. The table tells you that the minimum temperature for a sleeping bag with rating 3 is −5 °C.
This is the lowest rated sleeping bag he can get.

44) D
Add up the 4 given ages: 6 + 3 + 8 + 2 = 19.
The mean age of all 6 babies is 5 months, so the total must be 6 × 5 = 30 months.
This means the ages of the other 2 babies must add up to 30 − 19 = 11 months.
This means that the correct answer must be D.

45) B
The minute hand will go round 10.5 times between 12 noon and 10:30 pm. It travels through 360° each time it goes round.
So the total angle it travels through is 10.5 × 360° = 3780°.

46) (2, −2)
The reflected point is the same distance away from the mirror line on both sides.



47) £50
Substitute 300 for m in the formula and find C. Remember to follow BODMAS.
C = 15(300 ÷ 100) + 5
C = 15(3) + 5
C = 45 + 5
C = 50
The cost of printing 300 leaflets is £50.

48) B
The whole pie chart represents 20 days. If 20 days = 360°, then 1 day = 360 ÷ 20 = 18°. 3 foggy days will be represented by an angle of 3 × 18° = 54°.

49) £9.75
Find 30% of £2.50: 10% of £2.50 = £0.25
30% = 3 × 10% = £0.25 × 3 = £0.75.
So if he cleans the car one week he gets £2.50 + £0.75 = £3.25
If he does this for 3 weeks, he gets £3.25 × 3 = £9.75

50) D
1 game costs £39.99, so n games will cost him n × 39.99 = 39.99n. The computer cost £260.
Subtract these amounts from £500 to find what he has left over:
500 − 260 − 39.99n = 240 − 39.99n