Assessment Test 4

1. What is the value of the 7 in 7 230 000?

   A seven hundred million   **D** seventy million

   B seven hundred thousand   **E** seven million

   C seventy thousand

2. Which of the following is most likely to be the height of a fully grown tree?

   A 12 metres   **C** 1.2 centimetres   **E** 0.12 metres

   B 12 millimetres   **D** 0.12 centimetres

3. Tallulah has drawn part of a shape.

   She reflects her drawing in the dotted mirror line shown to make a shape.
   What type of shape does she form?

   A pentagon   **C** heptagon   **E** quadrilateral

   B octagon   **D** hexagon

4. Courtney records the temperature each day for five days.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature	−2 °C	1 °C	0 °C	2 °C	−1 °C

   On which day does she record the lowest temperature?

   Answer: _____

5. Ted's favourite TV programme is shown in the evening.
   It starts and finishes at the times shown on the clocks.

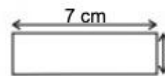   How long does the programme last for?

   Answer: _____ hour(s) _____ mins

   Start   Finish

6. What is the area of this shape?

   7 cm   2.5 cm   Answer: _____ cm²
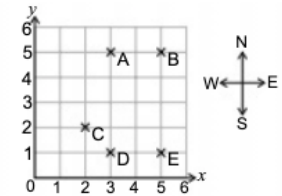
7. Which of these numbers is smallest?

   0.81   1.92   12.4   21.42   0.18

   Answer: _____

/ 7

8. Jane and Sue are playing a game. Jane starts at point (4, 3).
   She moves 1 unit east and 2 units south on the grid.
   Which point (A, B, C, D or E) does she end up at?

   Answer: _____

9. Lucas lives in Kneesall.
   He needs to be at his school in Rippen by 8.40 am to go on a trip.
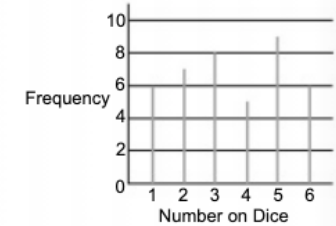
   The timetable shows the bus times.

Bus depot	8:00 am	8:05 am	8:10 am	8:15 am	8:20 am
Kneesall	8:10 am	8:15 am	8:20 am	8:25 am	8:30 am
Rippen	8:15 am	8:20 am	8:25 am	8:30 am	8:35 am
Hathern	8:29 am	8:34 am	8:39 am	8:44 am	8:49 am

   What is the latest time he can catch a bus?

   Answer: _____ am

10. The frequency chart shows the results of throwing a dice.
    How many times was the dice thrown altogether?

    Answer: _____

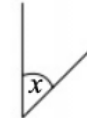11. Macy buys four bunches of flowers.
    One of the bunches costs £1.99.
    The other three bunches cost £1.49 each.

    What is the total cost of the flowers?

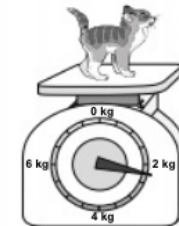   **A** £6.59   **B** £6.46   **C** £5.56   **D** £5.64   **E** £64.60

12. Estimate the size of angle x.

    A 10°   **B** 95°   **C** 80°   **D** 15°   **E** 45°

13. How much does the kitten on the right weigh?

    A 2.5 kg   **C** 2.25 kg   **E** 2.25 g

    B 2.05 g   **D** 0.5 kg

14. A regular heptagon has a perimeter of 56 cm.
    How long is each side?

    Answer: _____ cm

15. This chart shows the masses of some bags of fruit on sale in a supermarket.

Fruit	Mass per bag (g)
Oranges	600
Bananas	450
Apples	500
Pears	750

    Mr Smith buys 1 bag of oranges, 2 bags of bananas, 3 bags of apples and 1 bag of pears.

    How many kilograms of fruit has he bought?

    Answer: _____ kg

/ 8

16. Joe eats three loaves of bread on a seven day holiday.
    He eats the same amount of bread each day.
    What fraction of a loaf does he eat each day of the holiday?

    A ⅐ **B** ³⁄₇ **C** ¼ **D** ⁴⁄₇ **E** ⅓

17. This pie chart shows the pets belonging to the children in Sue's class.
    The total number of pets in the survey is 32.

    Which of the following is the best estimate for
    the number of dogs owned by the class?

    A 8 **B** 15 **C** 18 **D** 6 **E** 9
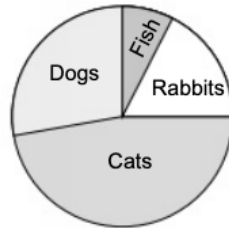
18. Li estimates the answer to 39 × 43 by rounding both numbers to
    the nearest 10 before multiplying them. What answer should he get?

    A 1500 **B** 1600 **C** 1200 **D** 2000 **E** 1677

19. Harriet's class is split into groups. There are 4 boys and
    3 girls in each group. There are 15 girls in the class.
    How many children are in her class?
    Answer: _____

20. Tammy is buying some cakes for her birthday party.
    Which of the following is the cheapest price per cake?

    A 15p each   **C** 10 for £1   **E** 15 for £1.50
    B 3 for 39p   **D** 25 for £2

21. A caterer is making a sauce. She uses 2.25 kg of apples for every 1 kg of sugar.
    How many kilograms of apples will she need if she uses 9 kg of sugar?

    A 4 kg **B** 202.5 kg **C** 2.025 kg **D** 2025 kg **E** 20.25 kg

22. Look at the information on the right for a breakfast cereal.
    How much carbohydrate would be in a 20 gram serving of cereal?

    Answer: _____ g

    A 30 gram serving contains:

Protein	4 g
Carbohydrate	21 g
Fat	1.5 g
Fibre	0.8 g
Salt	0.5 g

23. A piece of ribbon is 48 m long.
    It is cut into pieces that are each ⅓ m long.
    How many pieces are there?
    Answer: _____

24. Rashid is thinking of a 3D shape.
    The shape has 4 faces, 4 vertices and 6 edges.
    Which of the following could Rashid's shape be?

    A square-based pyramid   **D** cylinder
    B triangle-based pyramid   **E** cube
    C triangular prism

/ 9

25. Kate buys a second-hand car for £3,080. The original cost of the car was £6,999.
   By how much has the car's value decreased?

    Answer: £ _____

26. Jonathan's family go on a journey which is shown on this graph.
    The family stops for a break. How long does the break last for?

    A 1½ hours   **B** 1 hour   **C** 2 hours   **D** ½ hour   **E** 1¾ hours
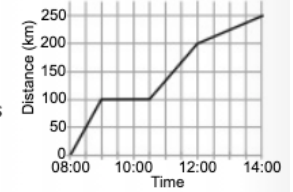
27. | 30 × 806 = 24 180 |
 |---|

    What is 30 × 403?

    A 1209 **B** 12 900 **C** 48 360 **D** 4836 **E** 12 090

28. The diagram shows a patio made from two identical triangular slabs.
    What is the area of the patio?

    A 3.84 m²   **C** 480 m²   **E** 192 m²
    B 19.2 m²   **D** 38.4 m²
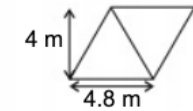
29. A school buys some badges to sell at the summer fair.
    The school pays 70p for each badge and sells them for £1 each.

    The school sells all the badges, and makes a profit of £60.
    How many badges did the school buy?
    Answer: _____

30. Fred asked all the children in Year 6 what their
    favourite crisp flavour was. The bar chart
    shows his results.

    Which two flavours together were as popular
    as Ready Salted?
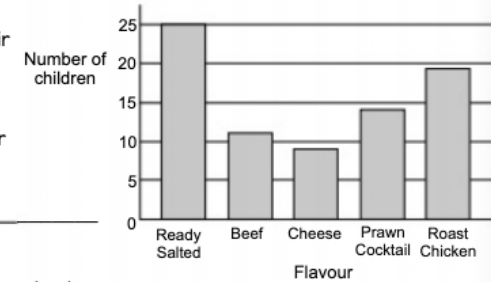
    Answer: _____ and _____

31. Look at the volumes shown below. Find the total volume.

    5.555 litres   5.55 litres   5.5 litres   5.0 litres   0.5 litres
    Answer: _____ litres

32. Class 7 have made 250 biscuits to sell at the school fair.
    They pack them in bags of 12.

    How many biscuits are left over?
    Answer: _____

33. A bag contains 5 cherry sweets and 10 lime sweets.
    What is the ratio of cherry sweets to lime sweets in its simplest form?
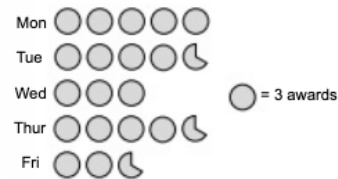
    Answer: _____ : _____

/ 9

34. Find the sum of all the square numbers between 46 and 91.　　　Answer: _____

35. The pictogram shows the number of awards Class 7 gained each day in a week.

Mon	◯◯◯◯◯
Tue	◯◯◯◯◖
Wed	◯◯◯
Thur	◯◯◯◯◖
Fri	◯◯◖

◯ = 3 awards

How many more awards did the class get on Thursday than on Wednesday?

Answer: _____

36. A bag contains some striped balls and some spotted balls.
The pattern on the balls is either red or yellow.
The table on the right shows how many of each ball there are.

	spotted	striped
yellow	6	3
red	4	7

What percentage of the balls have a pattern of yellow spots?

Answer: _____ %

37. The table shows how much Ahmed saves each month.

January	£1.20
February	80p
March	£1.50
April	£1.10
May	£1.50
June	50p

What is Ahmed's mean monthly saving for these 6 months?

Answer: £ _____

38. Mark takes seven 4 cm cubes and places them end to end to make this shape.

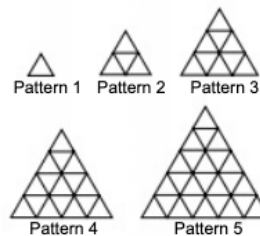He then puts the shape on a piece of paper, and draws around it with a pencil.

What is the perimeter of the shape that he draws?

Answer: _____ cm

4 cm
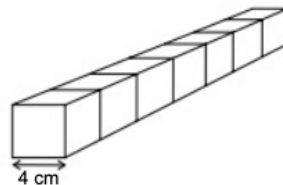
39. Simon is investigating patterns made from triangles.
Which expression represents the number of small triangles in the nth pattern in the series?

A $n+1$　　**B** n^2+1　　**C** n　　**D** n^2　　**E** n^2-1

Pattern 1　Pattern 2　Pattern 3

Pattern 4　　Pattern 5

40. A dog eats 245 g of dried food per meal.
She has 3 meals per day.

How much food does the dog eat in a week?

A 0.4725 kg　　**C** 3.375 kg　　**E** 47.25 kg
B 5.145 kg　　**D** 1.575 kg

41. The table shows the opening times of a café.
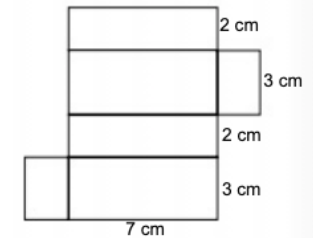The cost of running the café is £10 per hour.

How much more per week does it cost to run the café in the summer than in the winter?

	Opens	Closes
Mar – Sep	9 am	6 pm
Oct – Feb	11 am	4 pm

Answer: £ _____

/ 8

42. The net folds up to form a 3-dimensional shape.
What is the volume of this shape?

Answer: _____ cm³

2 cm
3 cm
2 cm
3 cm
7 cm

43. Katie buys six 1 litre cartons of milk each week.
She drinks 350 ml of milk twice a day.
She uses the whole carton before she opens a new one.
How much milk will be left over after 7 days?

Answer: _____ ml

44. Oscar faces north and then turns through 225° in a clockwise direction.
Which direction is he now facing?

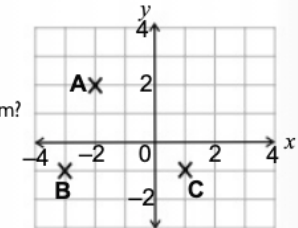**A** west　**B** south west　**C** south east　**D** south　**E** east

N
NW　NE
W　E
SW　SE
S
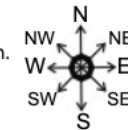
45. Bilal is drawing a parallelogram on a coordinate grid.
Points A, B and C are three of the corners of the parallelogram.

What are the coordinates of the fourth corner of the parallelogram?

Answer: (___ , ___)

46. $x^2 - 1 > 49$

If x is a positive whole number, what is the smallest it could be?

Answer: _____

47. Look at the function machine on the right.
If the number 25 comes out of the machine what number went in?　? ── (× 5) ── (÷ 7) ──▶ 25

Answer: _____

48. Which formula can be used to work out the nth term of this series?

−1　1　3　5　7

A $3n$　**B** $n-3$　**C** $2n-3$　**D** $2 \div n - 3$　**E** $2n+3$

49. Roger wants to spread grass seed on a rectangular area of soil.
A tub of seed costs £5.99 and covers 12 square metres of soil.

How much will the seed cost altogether if Roger's area of soil measures 8 metres by 6 metres?

Answer: £ _____

50. Lucy wants to buy a T-shirt in a sale.
All items in the sale are reduced by 60%.

What is the sale price of the T-shirt if the original price was £n?

A $n \div 60$　**B** $\frac{2}{5}(n)$　**C** $n-60$　**D** $\frac{3}{5}(n)$　**E** $2n-6$

/ 9

Assessment Test 4

Pages 61-66

1) E
1 million is 1 000 000, so 7 000 000 is seven million.

2) A
Trees are usually taller than a person's height. The other measurements are all much smaller than a person's height.

3) D
A shape with six sides is formed, which is a hexagon.

4) Monday
−2°C is the lowest temperature in the table.

5) 1 hour 20 mins
The programme starts at 6:55 pm and finishes at 8:15 pm.
Count on 1 hour from 6:55 pm to 7:55 pm. Then count on from 7:55 pm to 8:15 pm which is 20 more minutes, making a total of 1 hour 20 minutes.

6) 17.5 cm²
The area of a rectangle is length × width. So, the area is 7 × 2.5. Partition 2.5 into 2 and 0.5 and multiply each number by 7.
7 × 2 = 14. 7 × 0.5 = 3.5. So 7 × 2.5 = 14 + 3.5 = 17.5 cm².

7) 0.18
Only two of the numbers are less than 1: 0.81 and 0.18.
0.18 only has 1 tenth, whereas 0.81 has 8 tenths.
So 0.18 is smallest.

8) E
She starts at (4, 3) so one unit east takes her to (5, 3).
Two units south take her to (5, 1). So, she ends up at point E.

9) 8:30 am
The latest bus arriving at Rippen before 8:40 am is the one that leaves Kneesall (where Lucas lives) at 8:30 am.

10) 41
The frequency just shows how many times each number has been rolled. Read off the frequency of each number and add them up to find out how many times the dice was thrown altogether:
6 + 7 + 8 + 5 + 9 + 6 = 41.

11) B
You can find the answer by rounding the prices of the bunches of flowers. The cost of three bunches at £1.49, is slightly less than £1.50 × 3 = £4.50. The other bunch costs £1.99, which rounds to £2. So the total cost is about £4.50 + £2 = £6.50. You've rounded up each time, so the actual cost will be slightly less than £6.50, so answer B (£6.46) is the only possible choice.

12) E
Compare the angle to a right angle.
It is approximately half of a right angle. 90° ÷ 2 = 45°.

13) C
There are 8 spaces on the scale between 0 and 4 kg. So each space is worth 4 ÷ 8 = 0.5 kg. The arrow is half a space further along than 2 kg on the scale. Half of 0.5 kg = 0.25 kg.
So the kitten weighs 2 kg + 0.25 kg = 2.25 kg.

8 cm
...ular heptagons have seven equal sides,
...ach side is 56 ÷ 7 = 8 cm.

3.750 kg
...find the mass of each type of fruit:
...nges: 600 × 1 = 600 g
...anas: 450 × 2 = 900 g
...es: 500 × 3 = 1500 g
...s: 750 × 1 = 750 g
...up all the masses:
...0 + 900 = 1500 g
...0 + 1500 = 3000 g
...00 + 750 = 3750 g
...vert the grams to kilograms:
...0 g = 1 kg, so 3750 g = 3.750 kg

B
...had one loaf and ate an equal amount each day, he'd eat
...f a loaf. He has three loaves, so he eats three times more
...day. 3 × ¹/₇ = ³/₇.

E
...dogs' area of the pie chart is slightly bigger than a quarter
...e chart. Calculate a quarter of the 32 pets: 32 ÷ 4 = 8.
...one more than 8. The other choices are too big or too small
...e reasonable estimates.

B
...greater than 5, so 39 rounds up to 40. 3 is less than 5,
...3 rounds down to 40. 40 × 40 = 1600.

35
...the number of groups by dividing the number of girls in the class
...he number of girls in a group: 15 ÷ 3 = 5 groups. The number
...ildren in a group is 4 + 3 = 7, so the total number of children
...× 7 = 35. Alternatively, find the number of boys in the class by
...iplying the number of boys in a group by the number of groups:
...5 = 20 boys. 15 girls + 20 boys = 35 children in total.

D
...vert prices in £ to pence, then divide the price by the
...ber of cakes.
...5p each
...9p ÷ 3 = 13p each
...00p ÷ 10 = 10p each
...00p ÷ 25 = 8p each
...50p ÷ 15 = 10p each
...s the lowest price per cake.

E
...he answer choices are really different in this question, so you can
...use estimation to quickly work out roughly how big the answer is.
...mass of apples needs to be just over double the mass of sugar.
...or 9 kg of sugar you'll need a bit more than 18 kg of apples. The
...possible answer is 20.25 kg. Alternatively, round 9 kg to 10 kg.
...need 2.25 kg of apples for every 1 kg of sugar, so for 10 kg of
...r you need roughly 10 × 2.25 = 22.5 kg. You rounded up, so you
...v that the answer is a bit less than 22.5 kg. Again 20.25 kg is
...only possibility.

14 g
...g is two-thirds of 30 g. If there are 21 g of carbohydrate in
...g of cereal, there will be two thirds of 21 g in 20 g of cereal.
...third of 21 g = 21 ÷ 3 = 7 g
...thirds of 21 g = 7 × 2 = 14 g

23) 144
Each piece is ¹/₃ m, so each metre of ribbon will make 3 pieces. There is 48 m of ribbon, so the total number of pieces = 3 × 48 . You can calculate this by partitioning 48:
(3 × 40) + (3 × 8) = 120 + 24 = 144. You could also round 48 m to 50 m and calculate 3 × 50 = 150. You added 2 m extra when rounding, so there are 3 × 2 = 6 too many pieces.
Total number of pieces = 150 − 6 = 144

24) B
Triangle-based pyramids have 4 triangular faces,
4 vertices and 6 edges.

25) £3919
Subtract the price Kate paid from the original price:
£6999 − £3080 = £3919. You can do this subtraction using partitioning: 6999 − 3000 − 80 = 3999 − 80 = £3919

26) A
The horizontal line on the graph shows no distance was travelled between 09:00 and 10:30, which is 1½ hours. (Read the times off the horizontal axis.) This was when they were having a break.

27) E
403 is half of 806. So 30 × 403 must be equal to half of 30 × 806. As 30 × 806 = 24 180, 30 × 403 must be 24 180 ÷ 2 = 12 090.

28) B
The options are all very different, so try estimating to find the answer. The base of each triangle is about 5 m, and the height of each triangle is 4 m.
Area = ½ × base × height = ½ × 5 × 4 = 2.5 × 4 = 10 m².
The area of each triangle is about 10 m², so the area of the patio is about 2 × 10 = 20 m². The only answer that is possible is 19.2 m².

29) 200
Work out the profit the school makes on each badge:
£1 − 70p = 30p. They made £60 or 6000p in total.
So divide 6000 by 30 to find the number of badges they bought.
6000 ÷ 30 = 200.

30) Beef and Prawn Cocktail
According to the bar chart, 25 children said Ready Salted.
Now find two other flavours for which the numbers of children add up to 25. 11 children said Beef, and 14 said Prawn Cocktail
(11 + 14 = 25). This is the only pair which add to 25.

31) 22.105 litres
Add units = 5 + 5 + 5 + 5 = 20
Add tenths = 0.5 + 0.5 + 0.5 + 0.5 = 2
Add hundredths = 0.05 + 0.05 = 0.1
Add thousandths = 0.005 only
20 + 2 + 0.1 + 0.005 = 22.105 litres

32) 10
250 ÷ 12 = 20 remainder 10. 12 × 10 = 120,
so 12 × 20 = 240. 250 − 240 = 10. 10 is less than 12,
so no more bags can be filled. So 10 biscuits are left over.

33) 1 : 2
The ratio of cherry sweets : lime sweets is 5 : 10.
In its simplest form, this is 1 : 2.
(You simplify ratios by dividing the both sides by the same number — in this case 5.)

34) 194
Write down the square numbers between 46 and 91:
6 × 6 = 36 — too small, 7 × 7 = 49, 8 × 8 = 64, 9 × 9 = 81, 10 × 10 = 100 — too big. 49 + 64 + 81 = 194.

35) 5
Each symbol is worth 3 awards, so the three full circles on Wednesday represent 3 × 3 = 9 awards. The four full circles on Thursday represent 4 × 3 = 12 awards, and the two-thirds of a circle represents 2 awards, giving a total of 12 + 2 = 14. So the difference is 14 − 9 = 5 awards.

36) 30%
There are 6 + 3 + 4 + 7 = 20 balls altogether, and 6 of these have a pattern of yellow spots.
So ⁶/₂₀ or ³/₁₀ balls have a pattern of yellow spots.
As a percentage, this is 30%.

37) £1.10
To calculate the mean, add up the amounts and divide by the number of months (6):
£1.20 + £0.80 + £1.50 + £1.10 + £1.50 + £0.50 = £6.60
(Remember to convert 80p to £0.80 and 50p to £0.50.)
Now divide the total by 6: £6.60 ÷ 6 = £1.10

38) 64 cm
The shape he draws is a rectangle. The rectangle is the same length as seven cubes (7 × 4 = 28 cm).
The rectangle is as wide as one cube (4 cm).
So the perimeter is 28 + 28 + 4 + 4 = 64 cm.

39) D
Count the number of small triangles in each pattern and see how they relate to the pattern number:
Pattern 1 = 1 triangle
Pattern 2 = 4 triangles
Pattern 3 = 9 triangles
Pattern 4 = 16 triangles
Pattern 5 = 25 triangles
These are all square numbers. If the pattern number is n, then the number of triangles is n^2.

40) B
The dog eats 245 g each meal, and she has 3 × 7 = 21 meals a week. So in one week, she eats 245 g × 21. The answers are all very different, so try estimating to find the answer. Round 245 g up to 250 g, and 21 down to 20.
250 × 20 = 5000 g = 5 kg.
The only answer close to 5 kg is 5.145 kg.

41) £280
First work out how many hours a day the café is open for in the summer and in the winter. Mar − Sep: 9 am to 6 pm = 9 hours.
Oct − Feb: 11 am to 4 pm = 5 hours. So the café is open 4 hours (9 − 5) more each day in the summer.
So it's open 4 × 7 = 28 hours longer per week in the summer.
It costs £10 per hour to run the café, so it costs
28 × £10 = £280 more each week in the summer.

42) 42 cm³
The net folds up to form a cuboid:
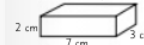
Volume = length × width × height = 7 × 3 × 2 = 42 cm³

43) 1100 ml
First work out how many ml of milk Katie drinks each day: 350 ml twice a day = 350 × 2 = 700 ml. Now find out how much milk she drinks a week. 700 × 7 = 4900 ml. She starts with 6 litres of milk, which is 6000 ml. So at the end of the week, she has
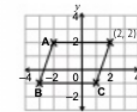6000 − 4900 = 1100 ml left.

44) B
There are 180° in a half turn, 90° in a right angle, and 45° in half a right angle. 225° = 180° + 45° = a half turn and half a right angle:
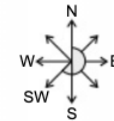
45) (2, 2)
Parallelograms have two pairs of equal parallel sides, so the completed shape will look like this:

46) 8
49 is a square number — 7² = 49. So if x = 7, $x^2 − 1 = 48$, which is less than 49, so the statement isn't true. That means the answer must be 8 — if x = 8, $x^2 − 1 = 63$, which is greater than 49, so the statement is true.

47) 35
Use inverses to work back from 25. To find the number divided by 7 to get 25, multiply 25 by 7: 25 × 7 = 175. To find the number that is multiplied by 5 to get 175, divide 175 by 5:
175 ÷ 5 = 35.

48) C
Make a table of the values and their positions in the pattern:

n	1	2	3	4	5
value	−1	1	3	5	7

You might be able to spot the pattern — you double n and subtract 3 to get the value. This means the formula is $2n − 3$.
If you don't spot this pattern, just substitute one of the n values into each formula in turn, and see which gives you the correct value.
E.g. if n = 2.
A: 3n = 3 × 2 = 6 — not correct
B: n − 3 = 2 − 3 = −1 — not correct
C: 2n − 3 = 2 × 2 − 3 = 1 — correct
D: 2 ÷ n − 3 = 2 ÷ 2 − 3 = −2 — not correct
E: 2n + 3 = 2 × 2 + 3 = 7 — not correct
Only C gives the correct value, so must be the formula.

49) £23.96
The area of the soil is 8 × 6 = 48 m².
One tub of seed covers 12 m², so 48 ÷ 12 = 4 tubs are needed.
This costs £5.99 × 4 = £23.96.

50) B
60% percent of an amount is ⁶⁰/₁₀₀ = ⁶/₁₀ = ³/₅ of it.
If the price of an item is reduced by ³/₅ the new price will be 1 − ³/₅ = ²/₅ of it. So, if the amount is n, the sale price will be ²/₅ (n) .