

# Answers

Key abbreviations: °C: degrees centigrade, cm: centimetre, g: gram, kg: kilogram, km: kilometre, m: metre, ml: millilitre, mm: millimetre

## Test 1

- Q1 B**  
8 blocks are not blue and the rest are blue.  
Since  $\frac{1}{2}$  the blocks are blue, 8 blocks must be blue.
- Q2 C**
- Q3 E**  
Angle  $a$  seems to be around  $\frac{1}{3}$  of a right angle, so around  $30^\circ$ .
- Q4 B**
- Q5 C**
- Q6 A**  
Number of girls that chose Pointless  
 $= 200 - 11 - 32 - 28 - 36 - 64 = 29$
- Q7 A**  
100 g apple slices  $\rightarrow$  0.26 g protein  
50 g apple slices  $\rightarrow$  0.13 g protein  
250 g apple slices  $\rightarrow$   $0.26 \text{ g} + 0.26 \text{ g} + 0.13 \text{ g}$   
 $= 0.65 \text{ g protein}$
- Q8 D**  
 $2 + 4 + 6 + 8 + 10 = 30$   
 $30 + 12 + 14 = 56$
- Q9 B**  
Town A tourists  $= 1023 + 2341 = 3364$   
Town B tourists  $= 1011 + 908 = 1919$   
Difference  $= 3364 - 1919 = 1445$
- Q10 E**  
Number of edges in a square-based pyramid  $= 8$   
Number of edges in a triangle-based pyramid  $= 6$   
Difference  $= 8 - 6 = 2$

## Test 2

- Q1 C**  
 $300198 + 10000 = 310198$
- Q2 D**  
She was at the bridge between 15:00 and 17:00 and so she witnessed the lifts at 15:15, 15:45 and 16:30.
- Q3 A**  
Length of 1 drama class  $= 45$  minutes  
Time spent at drama class per week  
 $= 45 \text{ minutes} \times 4 = 180 \text{ minutes} = 3 \text{ hours}$
- Q4 D**  
Angle  $a = 360^\circ \div 5 = 72^\circ$   
Third angle  $= 180^\circ - 60^\circ - 48^\circ = 72^\circ$
- Q5 C**  
Total spent  $= \text{£}1.10 + \text{£}0.65 = \text{£}1.75$   
So he must pay with a £2 coin  
Change received  $= \text{£}2 - \text{£}1.75 = \text{£}0.25$   
Four 5 pence coins + two 2 pence coins + one 1 pence coin  $= \text{£}0.25$
- Q6 B**  
Animals saved per week  $= 8 + 6 + 5 = 19$   
Animals saved in a fortnight  $= 19 \times 2 = 38$

- Q7 B**  
Total cost of tickets  $= \text{£}12.50 + \text{£}12.50 + \text{£}5.50 + \text{£}5.50 + \text{£}5.50 = \text{£}41.50$   
Change received  $= \text{£}50 - \text{£}41.50 = \text{£}8.50$
- Q8 E**  
 $\text{£}3.02 = 302\text{p}$ ;  $\text{£}6.70 = 670\text{p}$   
Number of coins in Jar 1  $= 670\text{p} \div 5\text{p} = 134$   
Number of coins in Jar 2  $= 302\text{p} \div 2\text{p} = 151$   
Difference  $= 151 - 134 = 17$  coins
- Q9 A**
- Q10 E**  
Length of AB  $= 4 \text{ cm}$   
Enlarged length of AB  $= 4 \text{ cm} \times 3 = 12 \text{ cm}$

## Test 3

- Q1 C**  
 $57 \div 3 = 19$
- Q2 B**  
Distance between house and church  $= 520 \text{ m} - 150 \text{ m} = 370 \text{ m}$
- Q3 B**  
Number of sides  $= 10$   
Perimeter  $= 10 \times 6 \text{ cm} = 60 \text{ cm}$
- Q4 D**  
At 04.30, the minute hand points to 6 and the hour hand points halfway between 4 and 5. So the distance between the hands is equivalent to half a right angle, which is  $45^\circ$ .
- Q5 B**  
Number of tiles  $= 9 \times 6 = 54$   
Number of black tiles  $= 6$   
 $\frac{6}{54} = \frac{1}{9}$
- Q6 D**  
Area of 1 square  $= 2 \text{ cm} \times 2 \text{ cm} = 4 \text{ cm}^2$   
Area of Figure C  $= 4 \text{ cm}^2 \times 4 = 16 \text{ cm}^2$
- Q7 C**  
1 hour  $= 60$  minutes  
 $60 \text{ minutes} \div 20 \text{ minutes} = 3$   
Distance walked in 1 hour  $= 2.5 \text{ miles} \times 3 = 7.5 \text{ miles}$
- Q8 E**  
The  $5 \times 5$  grid can be drawn to work this out.  
Or it can be seen that over half the squares must be shaded and since a  $5 \times 5$  grid contains 25 squares, at least 13 of them must be shaded, so 15 is the only possible answer.
- Q9 E**  
Difference  $= 73.5 \text{ cm} - 40.98 \text{ cm} = 32.52 \text{ cm}$
- Q10 D**  
Range  $= \text{largest number} - \text{smallest number}$   
 $= 1423 - 644 = 779$

### Test 4

- Q1 C**  
Cost of 1 bag =  $\pounds 10 + 8 = \pounds 1.25$   
Cost of 15 bags =  $\pounds 1.25 \times 15 = \pounds 18.75$
- Q2 D**
- Q3 C**  
1 m and 6 cm = 106 cm  
Sister's height =  $106 \text{ cm} - 2.5 \text{ cm} = 103.5 \text{ cm}$
- Q4 D**  
Work backwards:  
 $115 - 9 = 106$   
 $106 \div 2 = 53$
- Q5 C**  
Width of each small square = 1 cm  
Area of rectangle =  $4 \text{ cm} \times 3 \text{ cm} = 12 \text{ cm}^2$   
Area of parallelogram =  $3 \text{ cm} \times 3 \text{ cm} = 9 \text{ cm}^2$   
Difference in area =  $12 \text{ cm}^2 - 9 \text{ cm}^2 = 3 \text{ cm}^2$
- Q6 B**  
 $-4^\circ\text{C} \rightarrow 7^\circ\text{C}$  is  $11^\circ\text{C}$
- Q7 B**  
Mean =  $(\pounds 56 + \pounds 48 + \pounds 12 + \pounds 30 + \pounds 80) \div 5 = \pounds 226 \div 5 = \pounds 45.20$
- Q8 D**  
Length of each side =  $3.6 \text{ m} + 8 = 360 \text{ cm} + 8 = 45 \text{ cm}$
- Q9 E**  
Store sales increased in some months and declined in others.
- Q10 C**  
 $b$  is four times greater than  $a$ , so  $b$  divided by 4 must equal  $a$

### Test 5

- Q1 C**  
1 week = 7 days  
Total amount of milk =  $5 \text{ litres} + 600 \text{ ml} = 5.6 \text{ litres}$   
Milk consumption per day =  $5.6 \text{ litres} \div 7 = 0.8 \text{ litres}$
- Q2 E**  
Number of children without pets =  $28 - 16 = 12$   
Ratio =  $16:12 = 4:3$
- Q3 C**  
For regular shapes, the size of an internal angle increases with the number of sides.
- Q4 E**  
Number of pencils that are neither red nor blue =  $60 - 18 - 30 = 12$   
Probability =  $\frac{12}{60} = \frac{1}{5}$
- Q5 B**  
The completed shape will have six sides and will not be regular.
- Q6 A**  
 $180 \div 20 = 9$   
Total weight of bird food =  $750 \text{ g} \times 9 = 6750 \text{ g} = 6.75 \text{ kg}$
- Q7 D**  
A prime number can only be divided evenly by 1 or itself.  
 $111 \div 3 = 37$
- Q8 B**  
Number of hours in 1 week =  $7 \times 24 \text{ hours} = 168 \text{ hours}$   
 $\frac{36}{168} = \frac{3}{14}$

- Q9 D**  
The chart begins rising steeply from 06.00 or 6 am.
- Q10 B**  
Mode battery life is 2 as this is the battery life in hours that the greatest number of mobile phones have.

### Test 6

- Q1 E**  
 $X$  is greater than a right angle, so it must be greater than  $90^\circ$ .  $120^\circ$  is the only option greater than  $90^\circ$ .
- Q2 C**  
Board game discount =  $20\%$  of  $\pounds 22 = \pounds 4.40$   
Toy discount =  $10\%$  of  $\pounds 10 = \pounds 1$   
Price paid by Jane =  $\pounds 22 + \pounds 10 - \pounds 4.40 - \pounds 1 = \pounds 26.60$
- Q3 C**  
2.8 litres = 2800 ml  
 $\frac{600}{2800} = \frac{6}{28} = \frac{3}{14}$
- Q4 C**  
A trapezium is a quadrilateral with 1 pair of parallel sides.
- Q5 E**  
 $\frac{1}{3}$  of all participants didn't complain of nervousness.  
 $\frac{1}{3}$  of 60 = 20;  $60 \div 3 = 20$
- Q6 A**  
Total number of people = mean  $\times$  number of genres =  $15 \times 4 = 60$   
Number who chose classical =  $60 - 11 - 19 - 25 = 5$
- Q7 B**  
Total length of assembly =  $10 + 12 + 6 = 28$  minutes  
28 minutes after 8.45 am is 9.13 am
- Q8 A**  
Sister's current age =  $6 - 1 = 5$  years old  
Adrian's current age =  $5 \times 2 = 10$  years old  
Difference in age =  $10 - 5 = 5$  years
- Q9 E**  
 $142 + 1 = 143$ ; 143 is not a square number
- Q10 B**  
Number of sides in an octagon = 8  
Number of lines of symmetry in a rectangle = 2  
Ratio =  $8:2 = 4:1$

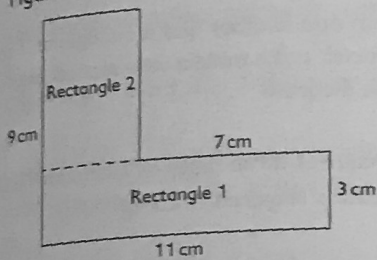
### Test 7

- Q1 D**  
Spice needed for 1 person =  $10 \text{ g} + 5 = 2 \text{ g}$   
Spice needed for 12 people =  $2 \text{ g} \times 12 = 24 \text{ g}$
- Q2 D**  
A reflex angle is greater than  $180^\circ$ .
- Q3 E**  
15% of  $\pounds 2000$  is  $\pounds 300$   
Salary of Job A =  $\pounds 2000 + \pounds 300 = \pounds 2300$   
Salary of Job B =  $\pounds 2350$   
Difference in salary of two job offers =  $\pounds 2350 - \pounds 2300 = \pounds 50$
- Q4 D**  
Total capacity of all cups =  $28 \times 200 \text{ ml} = 5600 \text{ ml}$   
2 litres = 2000 ml  
 $5600 \text{ ml} + 2000 \text{ ml} = 2.8$   
So 3 bottles must be purchased to ensure there is enough juice to fill every child's cup once.

- Q5 C**  
 Cost to clean living room = £30  
 Cost to clean staircase = £18 × 2 = £36  
 Total cost = £30 + £36 = £66
- Q6 D**  
 Number of books that Sally has = 120 ÷ 3 = 40  
 Number of books that Gareth has = 40 ÷ 2 = 20  
 Total number of books = 40 + 20 + 120 = 180
- Q7 D**  
 Length cannot be measured in kg.
- Q8 D**  
 Number of light bulbs needed = 6 × 5 = 30  
 Number of boxes needed = 30 ÷ 12 = 2.5  
 So Frank must buy 3 boxes of light bulbs to ensure he has enough.
- Q9 E**
- Q10 D**  
 0.2 of 60 = 12  
 $\frac{360}{30} = 12$   
 $\frac{2}{3}$  of 30 = 12  
 0.012 × 100 = 1.2  
 1.5 × 8 = 12

### Test 8

- Q1 D**  
**Q2 C**  
**Q3 E**  
 Figure C can be divided into 2 rectangles.



- Area of Rectangle 1 = 11 cm × 3 cm = 33 cm<sup>2</sup>  
 Area of Rectangle 2 = 4 cm × 6 cm = 24 cm<sup>2</sup>  
 Area of Figure C = 33 cm<sup>2</sup> + 24 cm<sup>2</sup> = 57 cm<sup>2</sup>
- Q4 A**  
 326 is half of 652 so X must be half of 56072  
 56072 ÷ 2 = 28036
- Q5 D**  
 A ratio of 7:8 means there are 15 parts in total.  
 Value of 1 part = £720 ÷ 15 = £48  
 Dolly receives 8 parts  
 8 × £48 = £384
- Q6 C**  
 $\frac{1}{2}$  tsp = 2.5 ml  
 4.5 Tbs = 15 ml × 4.5 = 67.5 ml  
 Total amount of vinegar = 2.5 ml + 67.5 ml = 70 ml
- Q7 D**  
 45 × 962 + 55 × 962 = 100 × 962 = 96200
- Q8 A**
- Q9 D**  
 Number of plain scarves = 7 + 10 = 17  
 Number of spotted scarves = 8 + 5 = 13
- Q10 E**  
 Average = (21 + 57 + 62 + 32) ÷ 4 = 172 ÷ 4 = 43

### Test 9

- Q1 D**  
 The shape has an area of 12.5 squares.  
 Each square has an area of 1 cm<sup>2</sup>.
- Q2 A**  
 25 - 7 = 18  
 18 - 7 = 11  
 11 - 7 = 4
- Q3 D**  
 1.2 × 4 = 4.8  
 0.48 × 10 = 4.8  
 $\frac{480}{100} = 4.8$   
 0.6 × 0.8 = 0.48  
 4 × 0.4 × 3 = 4.8
- Q4 A**  
 Number of vehicles in 1 part = 270 ÷ 15 = 18  
 Number of motorbikes = 2 × 18 = 36
- Q5 E**  
 \$500 = £300 so \$1000 = £600
- Q6 B**  
 6 m = 600 cm; 600 cm ÷ 50 cm = 12  
 5 m = 500 cm; 500 cm ÷ 50 cm = 10  
 Number of tiles needed = 12 × 10 = 120
- Q7 B**  
 Sequence pattern for number of dots is +2 +3 +4 ...  
 So sequence is 1 3 6 10 15 21 28 36
- Q8 D**  
 5% of 140 = 7
- Q9 C**  
 Length = area ÷ width = 49.5 ÷ 5.5 = 9 cm
- Q10 C**  
 The segment representing USA is around  $\frac{1}{10}$  of the total pie chart.

### Test 10

- Q1 E**  
 The shape's perimeter is equivalent to 16 square side lengths.  
 Side length of each square = 56 cm ÷ 16 = 3.5 cm
- Q2 B**  
 8<sup>2</sup> = 4<sup>3</sup>
- Q3 D**  
 Total number of flights that departed late = 5 × 15 = 75  
 Number of flights that departed late in July = 75 - 12 - 10 - 11 - 9 = 33
- Q4 C**  
 0.03 × 8 = 0.24  
 0.3 × 0.8 = 0.24
- Q5 D**
- Q6 A**  
 Time spent studying by Veran = 90 minutes  
 Time spent playing by Veran = 45 minutes  
 45 × 2 = 90
- Q7 C**  
 Total number of seats = 65 × 10 = 650

Test 10 answers continue on next page



**Q8 E**  
9 kilograms = 20 pounds  
So 45 kilograms = 100 pounds  
Ratio in pounds to kilograms = 100:45 = 20:9

**Q9 B**  
 $32.7 - 14.98 = 17.72$

**Q10 A**  
Shape A consists of 16 squares  
Shape B consists of 10 squares  
 $\frac{10}{16} = \frac{5}{8}$

### Test 11

**Q1 E**  
John pays £12  
Simon's cost =  $£4.99 \times 2 = £9.98$   
Difference =  $£12 - £9.98 = £2.02$

**Q2 A**  
Ratio of boys to girls in the class = 2:1 so 3 parts in total  
Number of girls =  $45 \div 3 = 15$   
Number of boys =  $15 \times 2 = 30$

**Q3 D**  
4 out of 6 parts are shaded grey in option D  
 $\frac{4}{6} = \frac{2}{3}$

**Q4 E**  
Number of days =  $10 \text{ kg} \div 1.25 \text{ kg} = 8$

**Q5 C**  
Most attendees are aged 18–24 so this is the mode age range.

**Q6 E**  
Largest population = 167907  
Smallest population = 11097  
Range =  $167907 - 11097 = 156810$   
156810 rounded to the nearest 10000 is 160000

**Q7 C**  
 $9 + 18 + 27 + 36 + 45 = 135$

**Q8 C**  
 $M = 1000$   
 $X = 10$   
 $V = 5$   
 $I = 1$   
MMXVII = 2017

**Q9 D**  
 $6.15 \rightarrow 8.10 = 1 \text{ hour } 55 \text{ minutes}$

**Q10 B**  
 $1.7 - 0.9 = 0.8$

### Test 12

**Q1 C**  
Fraction =  $\frac{5}{8}$   
 $\frac{1}{8} = 12.5\%$   
 $\frac{5}{8} = (12.5 \times 5)\% = 62.5\%$

**Q2 D**  
 $234 \div 29 = 8 \text{ Remainder } 2$

**Q3 D**  
Perimeter of first rectangle =  $9 \text{ m} + 12 \text{ m} + 9 \text{ m} + 12 \text{ m} = 42 \text{ m}$   
Perimeter of second rectangle =  $10 \text{ m} + 6 \text{ m} + 10 \text{ m} + 6 \text{ m} = 32 \text{ m}$   
Difference =  $42 \text{ m} - 32 \text{ m} = 10 \text{ m}$

**Q4 C**  
 $28 \div 4 = 7$   
 $32 \div 4 = 8$

**Q5 A**  
The polygon covers 19 whole squares on the grid. Each square has an area of  $1 \text{ cm}^2$  so the area of the polygon =  $19 \text{ cm}^2$

**Q6 D**  
Profit =  $£195 - £135 - £15 = £45$

**Q7 E**  
Cost of 1 pillow =  $£128 \div 8 = £16$   
Cost of 20 pillows =  $£16 \times 20 = £320$

**Q8 B**  
The median is the middle value when numbers are arranged in ascending order: 13 43 48 69 102 111 118  
Median = 69

**Q9 A**  
10% of 280 = 28  
So 30% of 280 =  $28 \times 3 = 84$

**Q10 B**  
If at least two angles measure  $60^\circ$ , that means all three angles in the triangle must equal  $60^\circ$  as  $60^\circ + 60^\circ + 60^\circ = 180^\circ$  so Triangle A must be equilateral.

### Test 13

**Q1 C**

**Q2 B**

**Q3 D**  
291 is both an odd number and a multiple of 3 so it should be placed in the middle intersection of the two circles on the diagram.

**Q4 D**  
The recipe requires three times as much flour as butter. Amount of butter required =  $1.5 \text{ kg} \div 3 = 0.5 \text{ kg}$

**Q5 C**  
The arrow points to a level roughly halfway between the 1 l mark and the 1.5 l mark so 1.25 l is the best estimate.

**Q6 A**  
2 metres and 3 cm =  $203 \text{ cm} = 2.03 \text{ m}$

**Q7 C**  
Total cost =  $5 \times 79\text{p} = 395\text{p} = £3.95$

**Q8 A**  
 $400 \div 8 = 50$   
 $700 \times 50 = 35000$

**Q9 A**  
Correct result =  $189030091 - 100 + 1000 = 189030991$

**Q10 E**  
Milk required per person =  $100 \text{ ml} \div 5 = 20 \text{ ml}$   
Milk required for 8 people =  $20 \text{ ml} \times 8 = 160 \text{ ml}$   
1 pack of milk = 50 ml  
So Helen will need to buy 4 packs of milk to ensure she has enough for the recipe.

### Test 14

**Q1 B**

The shape will be a pyramid with a six-sided base.

Q2 E Mrs Blake's age =  $(82 - 10) \div 2 = 72 \div 2 = 36$

Q3 C 2 hours and 20 minutes after 11.45 am is 2.05 pm

Q4 A  $\frac{1}{4}$  of the square is shaded  
 $\frac{1}{4} = 25\%$

Q5 D 4.2 rounded to the nearest whole number = 4  
3.965 rounded to the nearest tenth = 4

Q6 A  $-8^\circ\text{C} \rightarrow 14^\circ\text{C}$  is  $22^\circ\text{C}$

Q7 A Mean =  $(1 + 2 + 3 + 4) \div 4 = 10 \div 4 = 2.5$

Q8 C 1 ft = 12 in; 1 yd = 3 ft so 1 yd = 36 in so 3 yd = 108 in

Q9 C Probability of scoring less than 4 =  $\frac{3}{6} = \frac{1}{2}$   
Letter X is at the halfway point between 0 and 1 on the number line.

Q10 E Work backwards:  $250 \div 100 = 2.5$   
 $2.5 \div 2 = 1.25$

### Test 15

Q1 C Total number of pieces = 15  
Amy eats  $\frac{1}{3}$ , or 5 pieces so 10 pieces remain.  
Each brother receives half of the remainder;  $10 \div 2 = 5$

Q2 D  $90p = 20p + 20p + 20p + 20p + 5p + 5p$

Q3 A Base of triangle = diameter of semicircle  
Area of triangle =  $\frac{1}{2} \times 5 \times 10 = 25 \text{ cm}^2$

Q4 D Average cost per day =  $\pounds 115 \div 4 = \pounds 28.75$

Q5 E 2 years = 24 months  
Amount of fertiliser to be added =  
 $24 \div 2 = 12 + 15 = 27 \text{ ml}$

Q6 D Number of children that can currently swim  
 $= \frac{2}{9} \times 270 = 60$   
School's target number =  $\frac{4}{5} \times 270 = 216$   
Difference =  $216 - 60 = 156$

Q7 C First-class postage cost =  $\pounds 1.68$   
Second-class postage cost =  $\pounds 1.51$   
Difference =  $\pounds 1.68 - \pounds 1.51 = \pounds 0.17 = 17p$

Q8 A 1 gallon = 4 quarts  
1 quart = 2 pints  
1 pint = 2 cups  
So 1 gallon =  $(2 \times 2 \times 4)$  cups = 16 cups

Q9 D Number of vowels = 2  
Number of consonants = 6  
Ratio =  $2:6 = 1:3$

Q10 C

$$5y - 17 = 5 \times 3 - 17 = 15 - 17 = -2$$

### Test 16

Q1 C

Side length of square = radius of circle  
Radius = diameter  $\div 2 = 10 \text{ cm} \div 2 = 5 \text{ cm}$   
Area of square =  $5 \text{ cm} \times 5 \text{ cm} = 25 \text{ cm}^2$

Q2 D

$$1.02 \text{ m} = 1 \text{ m } 2 \text{ cm} = 1 \text{ m } + 20 \text{ mm}$$

Q3 A

$$5 \text{ weeks} = 35 \text{ days so ratio} = 1.5:35 = 3:70$$

Q4 C

Size 8 in the UK corresponds to size 36 in Europe.

Q5 A

$$\text{Area of rectangle} = 27 \text{ cm} \times 3 \text{ cm} = 81 \text{ cm}^2$$

$$\text{Side length of square} = \sqrt{81} = 9 \text{ cm}$$

Q6 E

Fixed initial cost =  $\pounds 10$  (at 0 minutes there is a  $\pounds 10$  cost)

Cost for every 10 minutes =  $\pounds 10$

$$\text{Cost for 1 hour} = \pounds 10 + \pounds 60 = \pounds 70$$

Q7 C

If half the berries are strawberries, there must be 24 berries in the basket as there are 12 strawberries in the basket.

$$\text{Number of raspberries} = 24 - 12 - 8 = 4$$

Q8 B

$\frac{16}{25}$  squares are shaded

$$\frac{16}{25} = \frac{64}{100} = 0.64$$

Q9 C

$$\frac{7}{y} = 7 \div y = 7 \div \frac{1}{2} = 7 \times \frac{2}{1} = 14$$

Q10 A

$$\text{Total cost} = (5 \times \pounds 0.79) + \pounds 3.50 = \pounds 3.95 + \pounds 3.50 = \pounds 7.45$$

### Test 17

Q1 D

$$\text{Area of the smaller square} = 16 \text{ cm}^2 \div 4 = 4 \text{ cm}^2$$

$$\text{Side length of the smaller square} = \sqrt{4} = 2 \text{ cm}$$

Q2 C

$$\text{Total distance} = 25 \times 18 \text{ m} = 450 \text{ m} = 0.45 \text{ km}$$

Q3 E

$$A^\circ = 180^\circ - 30^\circ - 30^\circ = 120^\circ$$

Q4 A

$$0.85 = \frac{85}{100} = \frac{17}{20}$$

Q5 E

$$\text{Toasts with omelette sold} = (175 - 60 - 35) \div 2 = 40$$

Q6 B

$$\text{Maximum number of seats} = (16 \times 6) + (20 \times 4) = 96 + 80 = 176$$

Q7 D

Number of black tiles = 18

Number of white tiles = 18

$$\text{Cost of black tiles} = 18 \times \pounds 12 = \pounds 216$$

$$\text{Cost of white tiles} = 18 \times \pounds 4.50 = \pounds 81$$

$$\text{Total cost} = \pounds 216 + \pounds 81 = \pounds 297$$

Test 17 answers continue on next page

**Q8 B**  
 2 litres = 2000 ml  
 Amount of juice left in bottle =  
 $2000 \text{ ml} - 200 \text{ ml} - 350 \text{ ml} = 1450 \text{ ml}$   
 Fraction of juice left in bottle =  $\frac{1450}{2000} = \frac{29}{40}$

**Q9 A**  
 $702 \div 4 = 175 \text{ Remainder } 2$

**Q10 C**  
 Perimeter of Figure C = number of sides  $\times a \text{ cm}$   
 $= 11 \times a \text{ cm} = 11a \text{ cm}$

### Test 18

**Q1 C**  
 The castle is west of both the school and the church and north of the park so it must be represented by the symbol shown.

**Q2 A**  
 Cooking time =  $(1000 + 200) \times 10 = 5 \times 10 = 50 \text{ minutes}$

**Q3 B**  
 Average =  $(2000 + 500 + 1400 + 220 + 1200) \div 5 = 5320 \div 5 = 1064 \text{ watts}$

**Q4 D**  
 $21 - 0.09 = 20.91$

**Q5 C**  
 1 litre = 1000 ml  
 Half a litre = 500 ml  
 Volume of mixture =  $500 \text{ ml} + 600 \text{ ml} = 1100 \text{ ml}$

**Q6 B**  
 $60 \div 12 = 5$   
 $36 \div 12 = 3$

**Q7 D**  
 $215 \div 10 = 21.5$   
 $21.5 + 0.5 = 22$

**Q8 C**  
 Mean =  $(11 + 13 + 15 + 17 + 19) \div 5 = 75 \div 5 = 15$

**Q9 B**  
 The shells can be divided into 3 equal parts  
 $54 \div 3 = 18$   
 Ryan collected 2 of these parts  
 $18 \times 2 = 36$

**Q10 E**  
 Fraction of squares shaded black =  $\frac{10}{54} = \frac{5}{27}$

### Test 19

**Q1 B**  
**Q2 C**  
 Radius = diameter  $\div 2 = 5.28 \text{ m} \div 2 = 2.64 \text{ m}$

**Q3 A**  
 Weight of nuts =  $(600 \times 3) \div 8 = 1800 \div 8 = 225 \text{ g}$

**Q4 D**  
 Width of rectangle =  $(25 \text{ cm} - 9 \text{ cm} - 9 \text{ cm}) \div 2 = 7 \text{ cm} \div 2 = 3.5 \text{ cm}$

**Q5 C**  
 Arrange in ascending order: £2820 £2846 £2864 £2990 £3033 £3855  
 Median price is halfway between £2864 and £2990  
 Median =  $(£2864 + £2990) \div 2 = £2927$

**Q6 B**  
 Number of adults =  $(65 + 5) \times 8 = 104$

**Q7 C**  
 $\sqrt{100} = 10$   
 So  $13 - a = 10$   
 So  $a = 3$

**Q8 E**  
 $\frac{2}{3} = 66\frac{2}{3}\%$

**Q9 A**  
 80% of her stamps = 900  
 10% of her stamps = 112.5  
 100% of her stamps = 1125

**Q10 D**  
 Number of sides = 6  
 Area of 1 side =  $6 \text{ cm} \times 6 \text{ cm} = 36 \text{ cm}^2$   
 Surface area of cube =  $36 \text{ cm}^2 \times 6 = 216 \text{ cm}^2$

### Test 20

**Q1 D**  
 $20^\circ\text{C}$  is roughly halfway between  $60^\circ\text{F}$  and  $80^\circ\text{F}$  so  $70^\circ\text{F}$  is the closest.

**Q2 A**  
**Q3 C**  
 $a = 360^\circ - 90^\circ - 40^\circ = 230^\circ$

**Q4 E**  
 Side length of square =  $\sqrt{4} = 2 \text{ cm}$   
 Side length of enlarged square =  $2 \text{ cm} \times 2 = 4 \text{ cm}$   
 Area of enlarged square =  $4 \text{ cm} \times 4 \text{ cm} = 16 \text{ cm}^2$

**Q5 C**  
 Actual time is 4.20 pm  
 $4.20 \text{ pm} \rightarrow 5.10 \text{ pm}$  is 50 minutes

**Q6 A**  
 Number of sheets per hour =  $25 \times 60 = 1500$   
 Number of sheets in 5 hours =  $1500 \times 5 = 7500$

**Q7 E**  
 $2 \text{ kg } 5 \text{ g} = 2005 \text{ g}$   
 Weight of each block =  $2005 \text{ g} \div 5 = 401 \text{ g}$

**Q8 B**  
 $\frac{2.76}{0.4} = 27.6 \div 4 = 6.9$

**Q9 D**  
 $\frac{4}{3}X = 20$  so  $\frac{1}{3}X = 20 \div 4 = 5$  so  $X = 5 \times 3 = 15$

**Q10 A**  
 Perimeter of Figure E =  $8 \times 3 \text{ cm} = 24 \text{ cm}$

### Test 21

**Q1 C**  
 Fraction =  $\frac{32}{(12 + 34 + 32 + 10 + 12)} = \frac{32}{100} = \frac{8}{25}$

**Q2 B**  
 Total cost =  $£35.50 \times 7 = £248.50$   
 $£248.50$  rounded to the nearest £10 is £250

**Q3 D**  
 Area of rectangle =  $6 \text{ m} \times 7 \text{ m} = 42 \text{ m}^2$   
 Area of square =  $6.5 \text{ m} \times 6.5 \text{ m} = 42.25 \text{ m}^2$   
 Difference =  $42.25 \text{ m}^2 - 42 \text{ m}^2 = 0.25 \text{ m}^2$

**Q4 A**  
 $6 \text{ m} = 600 \text{ cm}$   
 $20\% = \frac{1}{5}$   
 $\frac{1}{5}$  of  $600 \text{ cm} = 120 \text{ cm}$



Q5 C  
Number of 8 cm sides = 8  
Number of 2 cm sides = 4  
Perimeter =  $(8 \times 8 \text{ cm}) + (4 \times 2 \text{ cm}) = 64 \text{ cm} + 8 \text{ cm}$   
= 72 cm

Q6 A  
 $1 = \frac{8}{8}$  so  $5 = \frac{8}{8} \times 5 = \frac{40}{8}$

Q7 E  
Weight to be removed =  $4200 \text{ g} - 2500 \text{ g} = 1700 \text{ g}$   
= 1.7 kg

Q8 B  
 $s = t + 35$  so  $s - t = 35$

Q9 A  
There are 100 positive whole numbers less than 101.  
Multiples of 8 less than 101: 8, 16, 24, 32, 40, 48, 56, 64,  
72, 80, 88, 96  
Probability =  $\frac{12}{100} = 0.12$

Q10 E  
Total number of complaints =  $7 \times 7 = 49$   
Number of complaints received on Wednesday  
=  $49 - 9 - 10 - 8 - 2 - 10 - 4 = 6$

### Test 22

Q1 B  
 $14:49 \rightarrow 15:38$  is 49 minutes

Q2 A  
 $\pounds 6 = 600\text{p}$   
 $600\text{p} \div 30\text{p} = 20$   
 $\pounds 2 \times 20 = \pounds 40$

Q3 C  
225 is a multiple of both 5 and 9  
90 is a multiple of both 5 and 9

Q4 D  
6 weeks = 42 days so 42 days later will be a Monday  
So 45 days later will be a Thursday

Q5 B  
Number of boys that liked continental cuisine  
=  $80 - 14 - 17 - 10 - 12 - 15 = 12$

Q6 D  
Lowest common multiple of 3 and 8 is 24

Q7 C  
Arrow points halfway between 60.8 and 61, which is  
60.9

Q8 E  
Number of toys operated by battery =  $\frac{3}{7} \times 21 = 9$   
Number of batteries needed =  $9 \times 2 = 18$

Q9 E  
 $15 + 17 = 32$   
 $17 - 15 = 2$

Q10 B  
 $B = 180^\circ - 90^\circ - 52^\circ = 38^\circ$