**Day 168** **C Tier 10-a-day: Model Solutions**

## 1 Writing ratios

A vet sees 2 cats and 3 dogs.
Write down the ratio of dogs to cats.

The ratio of dogs to cats is written 3 : 2
**Answer: 3 : 2**

## 2 Negative numbers

Work out −6 − 3.

Use a number line
−6 − 3 = −9
**Answer: −9**

## 3 Coordinates

Here are three points.
(1, 9), (3, 0), (0, 1)
Which point lies on the y-axis?

A point on the y-axis has x-coordinate 0
**Answer: (0, 1)**

## 4 Vertically opposite angles

The diagram shows two straight lines crossing.
(a) Work out the size of angle x.
(b) Work out the size of angle q.
The diagram is not drawn accurately.

(a) Vertically opposite angles are equal
x = 60°
(b) Angles on a straight line add up to 180°
180 − 60 = 120
**Answer: (a) x = 60° (b) q = 120°**

## 5 Completing a table

The table shows the favourite fruit of 20 students.
Work out the number of students for Grapes.

Add the known numbers: 3 + 2 + 6 = 11
20 − 11 = 9
**Answer: 9**

## 6 Ordering negative numbers

Write these numbers in order, starting with the smallest.
0, −8, −6, 2, 8

Use a number line: negative numbers are smaller the further they are from 0
**Answer: −8, −6, 0, 2, 8**

## 7 Reflection on a grid

The point P is drawn on the grid.
P is reflected in the line y = 4.
Write down the coordinates of the image of P.

P is (3, 2)
P is 2 squares below the line, so the image is 2 squares above
y-coordinate: 4 + 2 = 6
**Answer: (3, 6)**

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## 8 Expressions for perimeter

A triangle has sides of length l cm, l cm and d cm.
Write an expression for the perimeter of the shape.
Give your answer in its simplest form.

Perimeter = l + l + d
= d + 2l
**Answer: d + 2l cm**

## 9 Radius and diameter

The diameter of a round table is 6 m.
Work out the radius.

The radius is half the diameter
6 ÷ 2 = 3
**Answer: 3 m**

## 10 The nth term

The nth term of a sequence is 6n − 3.
Write down the first three terms of the sequence.

Put n = 1, 2, 3 into 6n − 3
6 × 1 − 3 = 3
6 × 2 − 3 = 9
6 × 3 − 3 = 15
**Answer: 3, 9, 15**