"Between Papers" Practice

(F&H)

Summer 2018

Questions

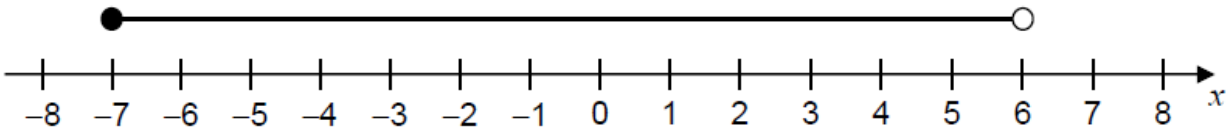
Not A "best" Guess paper.

Neither is it a "prediction" ... only the examiners know what is going to come up! Fact! You also need to REMEMBER that just because a topic came up on paper 1 it may still come up on papers 2 or 3 ...

We know how important it is to practice, practice, practice .... so we've collated a load of questions that weren't examined in the AQA 9-1 GCSE Maths paper 1 but we cannot guarantee how a topic will be examined in the next papers ...

Enjoy!
Mel & Seager

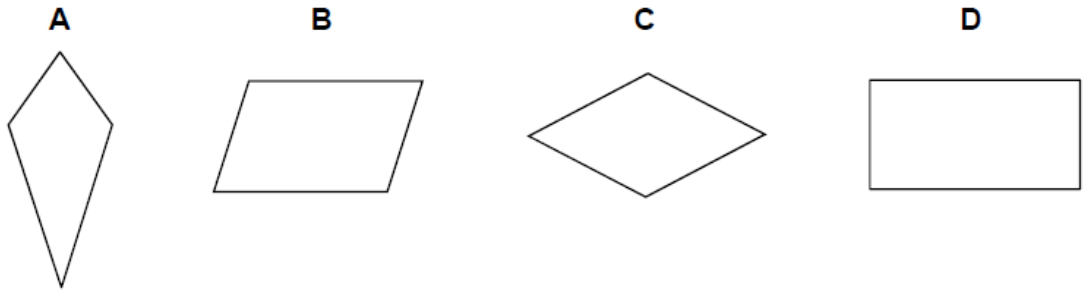
Q1. Circle the inequality shown by the diagram.



$-7 < x < 6$ $-7 \leq x < 6$ $-7 < x \ll 6$ $-7 \ll x \ll 6$

[1]

Q2. Which shape has two lines of symmetry and its diagonals intersecting at 90°?



Circle the correct letter.

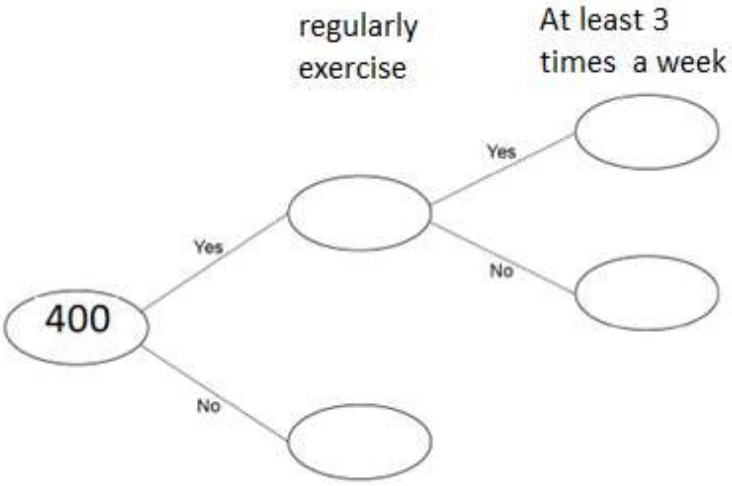
[1]

Q3. 400 people are asked if they exercise regularly.

$\frac{9}{10}$ say Yes.

20% of the people who say Yes exercise at least 3 times a week. .

(a) Complete the frequency tree.



[4 marks]

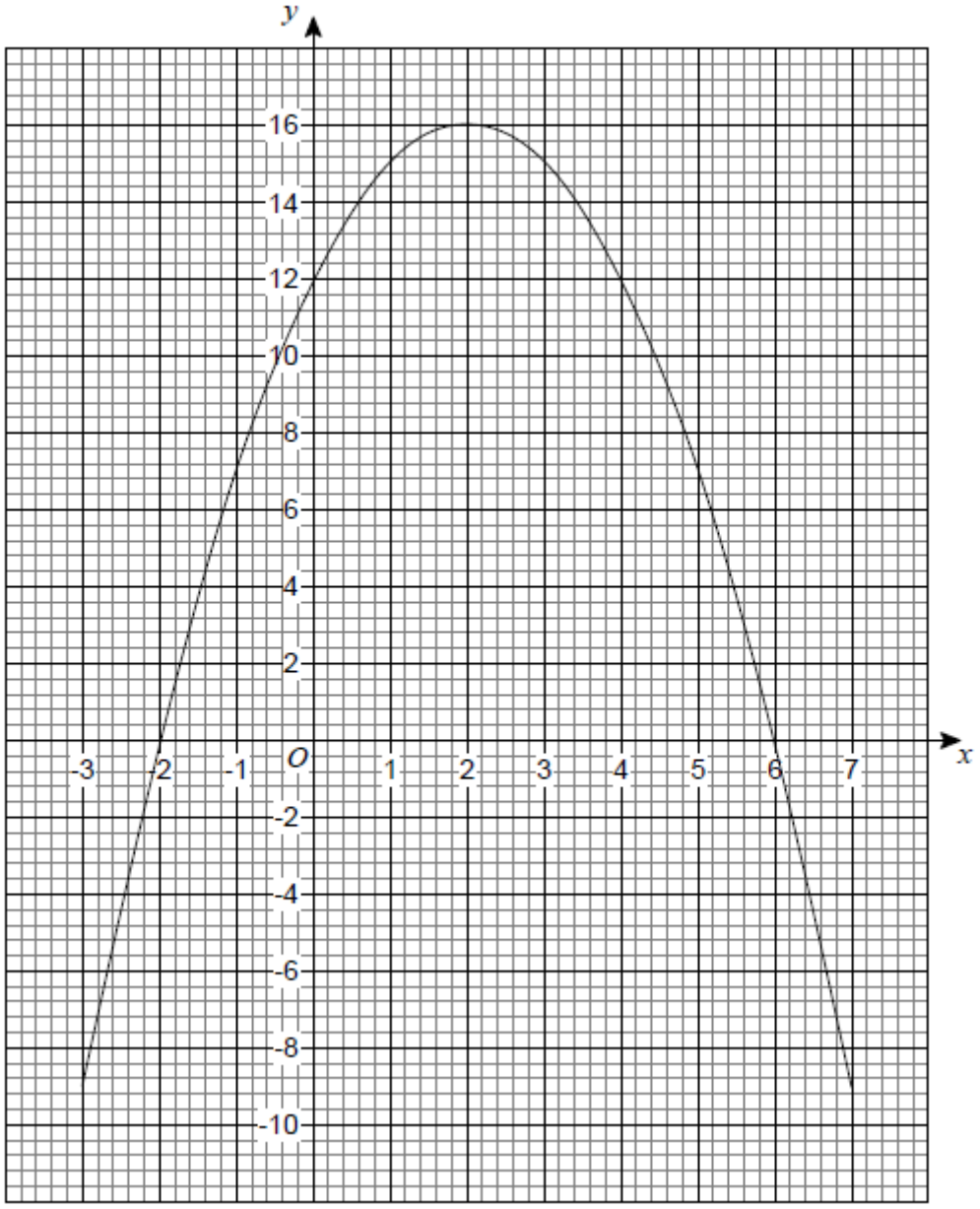
(b) What fraction of the 400 people exercise at least 3 times a week?
Give your answer in its simplest form.

[2 marks]

Q4. Circle the expression that can be written as $2y^2$ [1]

$(2y)^2$ $2 \times 2 \times y$ $2 \times y \times y$ $2 \times 2 \times y \times y$

Q5. The graph $y = a + bx - x^2$ is shown.



(a) Circle the coordinates of the turning point of the curve.

(-2, 0) (0, 12) (2, 16) (6, 0)

[1]

(b) Circle the value of a.

[1]

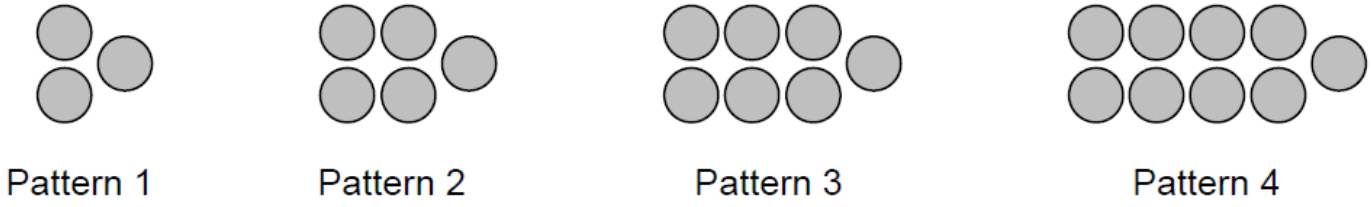
-2 12 16 6

(c) Circle the two roots of $a + bx - x^2 = 0$

-2 and 6 2 and -6 2 and 6 -2 and -6

[1]

Q6. The diagram shows a sequence of patterns.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

(a) Work out the number of circles in Pattern 6

[1]

(b) Complete the rule below.

[1]

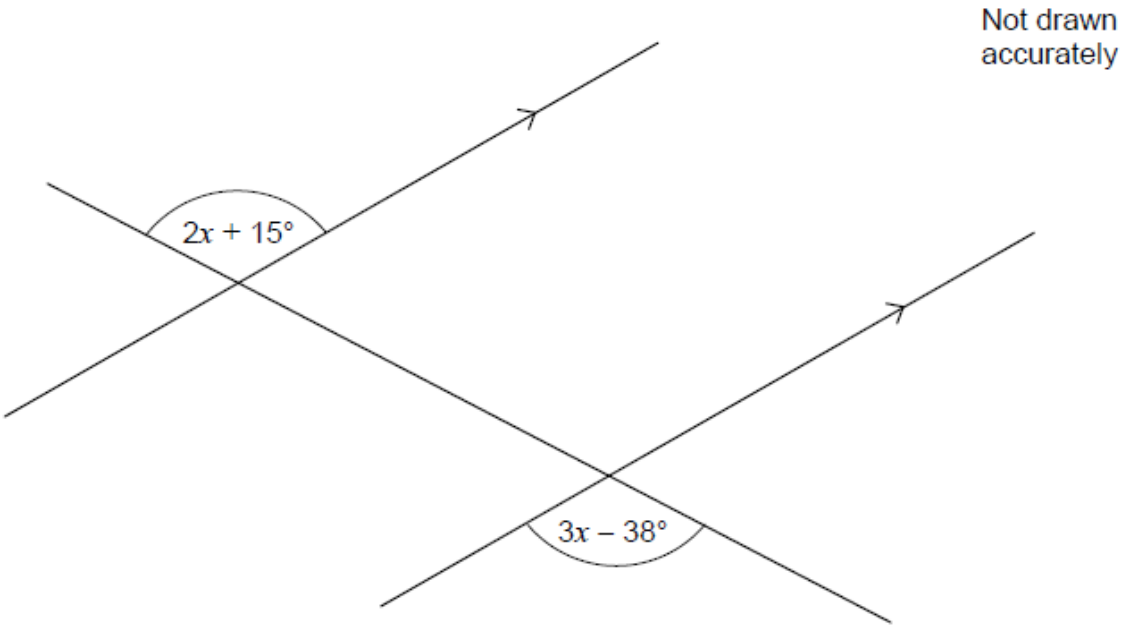
$$\text{Number of circles} = \text{Pattern number} \times \square + \square$$

(c) Which Pattern number has 51 circles?

[1]

Q7. Three straight lines are shown.

Work out the value of x.

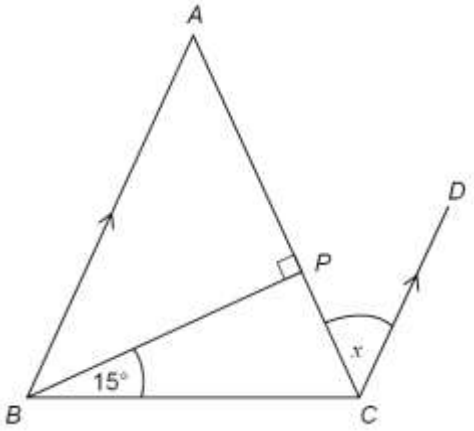


[3]

Q8. ABC is a triangle with AB = AC

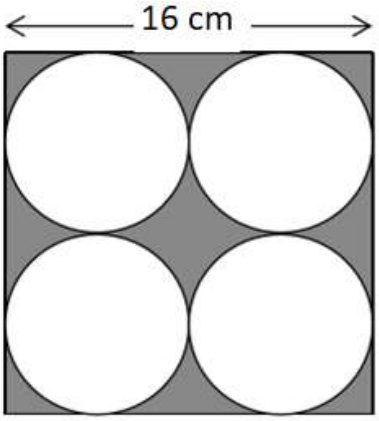
BA is parallel to CD.

Show that angle x = 30°



[3]

Q9. Four identical circles just fit inside a square as shown.

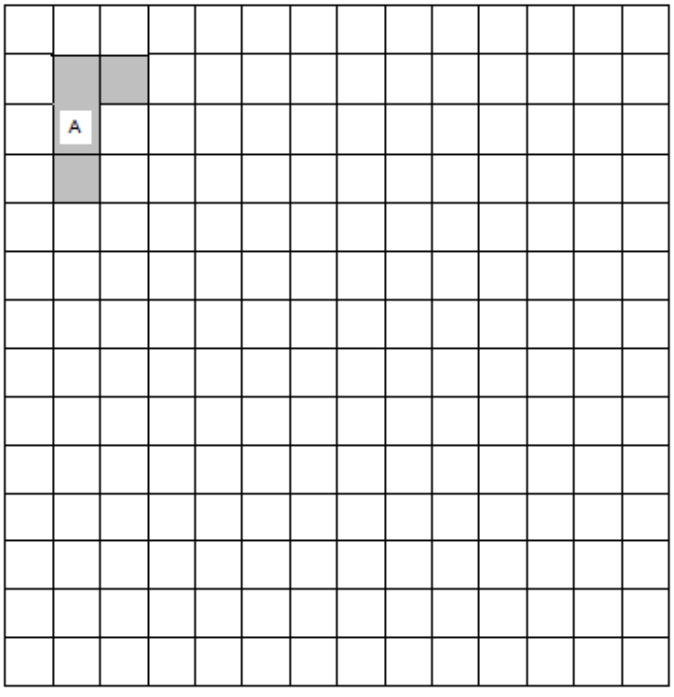


Work out the area of the shaded section.

Give your answer in terms of π.

[4]

Q10. On this grid draw a shape that is an enlargement of shape A.



[1]

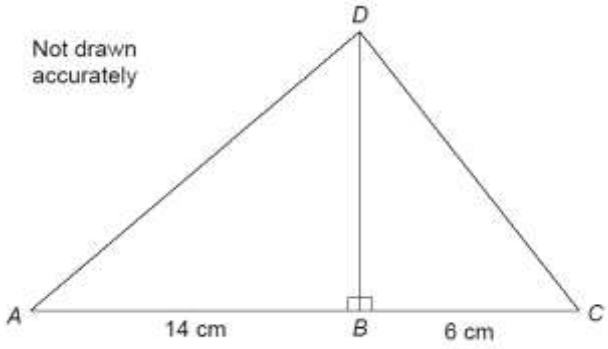
Q11. 1 mile = 5280 feet 1 foot = 12 inches 1 inch = 2.54 cm

Use the given conversions to show that 1600 metres is approximately 1 mile.

[3]

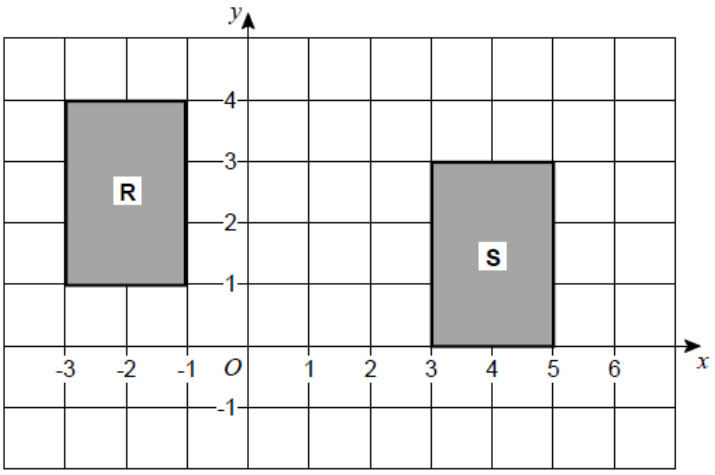
Q12. In the diagram the area of triangle ABD is 56 cm^2

Work out the length of CD.



[4]

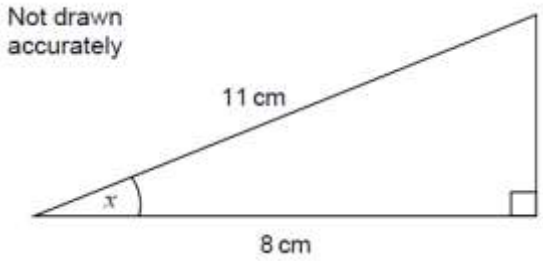
Q13. Circle the vector that translates shape R to shape S



$\begin{pmatrix}1\\-6\end{pmatrix}$ $\begin{pmatrix}6\\-1\end{pmatrix}$ $\begin{pmatrix}-1\\6\end{pmatrix}$ $\begin{pmatrix}-6\\1\end{pmatrix}$

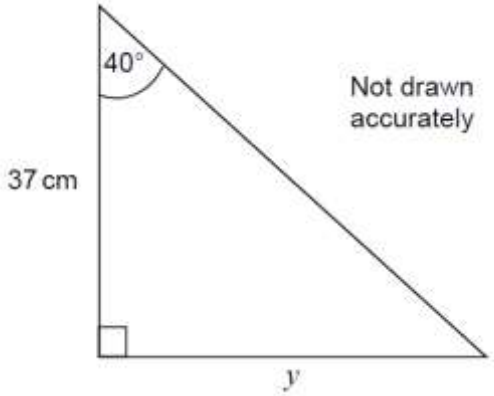
[1]

Q14. (a) Work out the size of angle x.



[2]

(b) Work out length y.



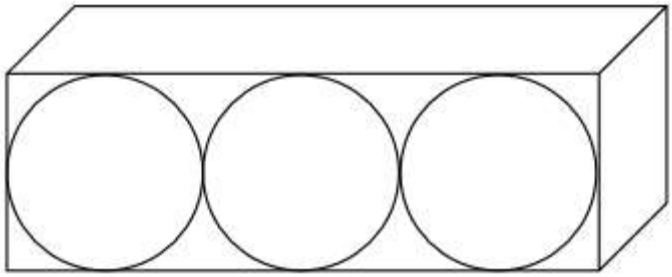
[2]

Q15. Volume of a sphere = $\frac{4}{3}\pi r^3$ where r is the radius.

a) Work out the volume of a sphere of radius 5 cm. Leave your answer in terms of π

[2]

b) Three spheres of radius 8 cm are packed tightly into a cuboid as shown.



Work out the volume of the cuboid.

[4]

Q16.. 2x + 3y = 15.5

x + y = 6

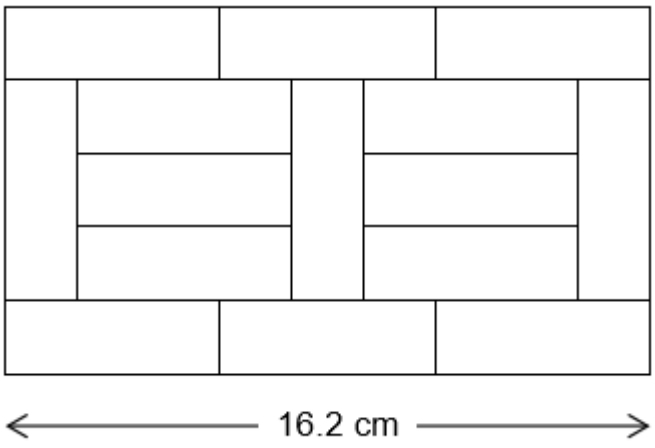
Work out the values of x and y.

x = ...

y = ...[3]

Q17. A shape is made using 15 identical rectangles.

Work out the area of the shape.



[4]

Q18. Beth uses these four cards to make 4-digit numbers.

How many different 4-digit numbers can she make that are greater than 8000?

[2]

Q19. Diaries are sold in boxes of 12

Pencils are sold in boxes of 10

Rulers are sold in boxes of 6

A teacher wants to buy the same number of diaries, pencils and rulers.

Work out the smallest number of boxes of each item he could buy.

_____ boxes of diaries

_____ boxes of pencils

_____ boxes of rulers

[3]

Q20. Write 280 as a product of its prime factors.

[2]

Q21. In a sale, the original price of a bag was reduced by $\frac{1}{5}$

The sale price of the bag is £29.40

Work out the original price.

[3]

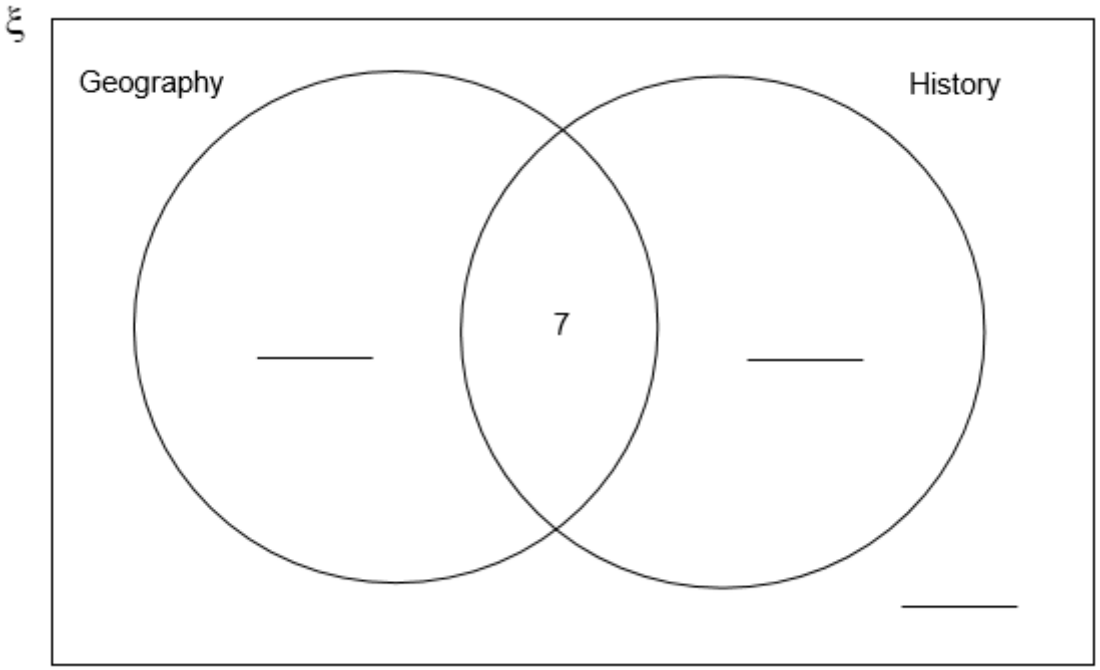
Q22. Which of these can be written as $\frac{a}{b}$? Circle your answer.

[1]

b ÷ a a – b a ÷ b b – a

Q23. 50 students are asked if they study Geography or History.

The Venn diagram shows some information about their answers.



a) What does the number 7 on the diagram represent?

[1]

b) 20 students study Geography but not History.

19 students study History.

Complete the Venn diagram.

[3]

Q24. Cola is sold in packs of 6 and packs of 8

What is the cheapest way to buy 48 cans of cola?

You must show your working.

1 pack of 6 for £1.95

or

2 packs of 6 for £3.50

1 pack of 8 for £2.64

or

2 packs of 8 for £5.00

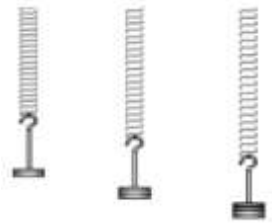
[4]

Q25. £800 is invested for 3 years at 2% simple interest per year.

Work out the total interest.

[3]

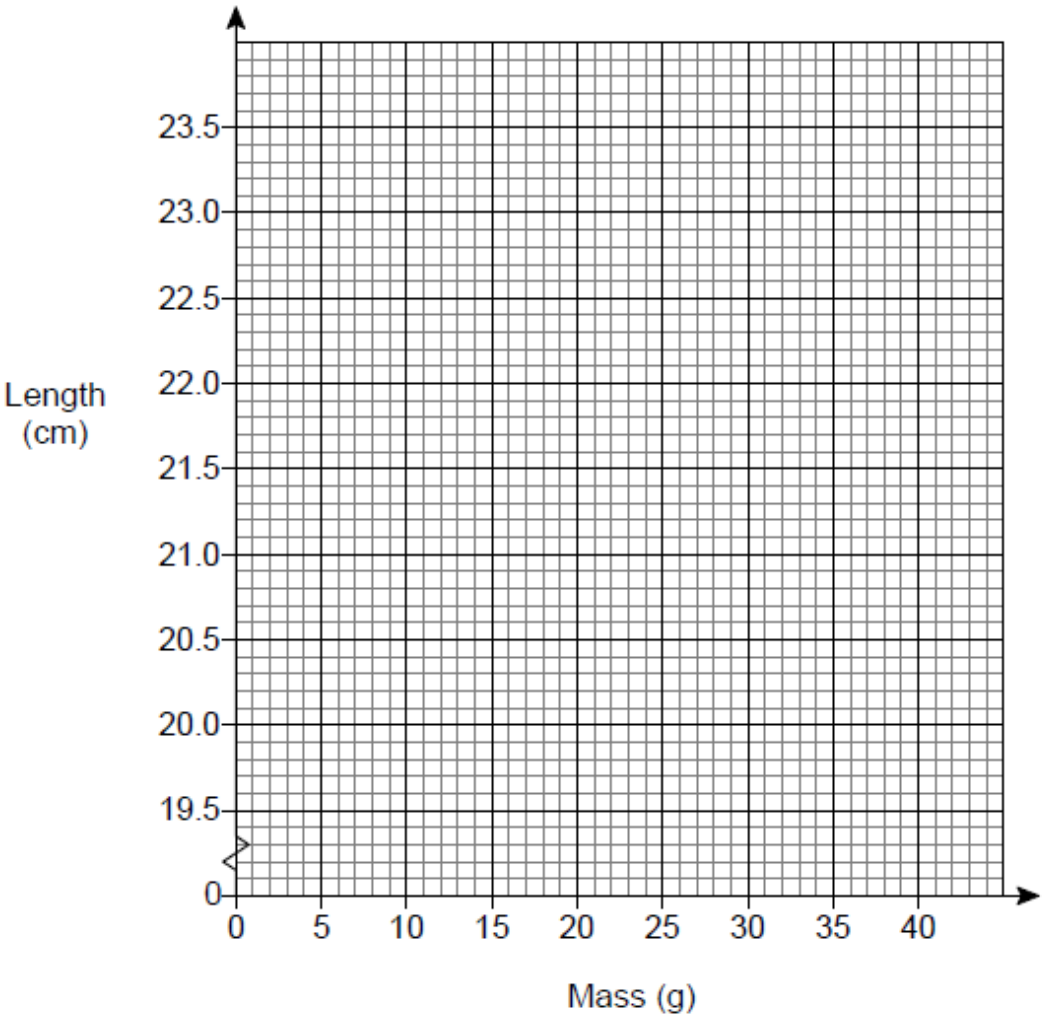
Q26. In an experiment, different masses are hung on a spring.



The length of the spring is measured for each mass.

Mass (g)	10	20	30	40
Length (cm)	20.8	21.6	22.4	23.2

(a) Draw a graph to show the length of the spring for masses from 10 g to 40 g



[2]

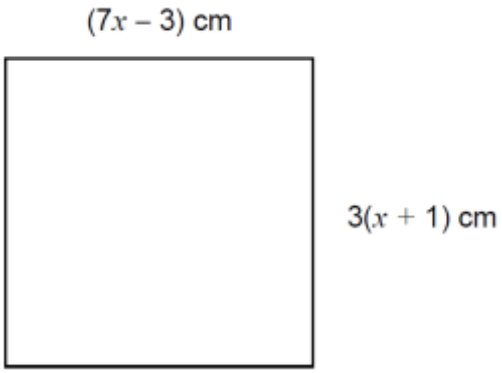
(b) Estimate the length of the spring with no mass hung on it.

[1]

(c) How much longer is the spring with a 35 g mass than with a 15 g mass?

[2]

Q27. The diagram shows a square.



Work out the length of one side of the square.

[4]

Q28. (a) Factorise fully $9a^2 - 6a$

[2]

(b) Solve $x^2 - 12x + 20 = 0$

[3]

Q29. A football team has P points $P = 3W + D$

W is the number of wins

D is the number of draws

(a) A team has 6 wins and 2 draws. How many points does the team have?

[1 mark]

(b) After 33 games a different team has 53 points. 11 games were draws.

How many games has this team lost?

[4 marks]

Q30. In a school show,

girls : boys = 1 : 1

girls who sing : girls who do not sing = 1 : 2

8 girls sing in the show.

How many students are in the show altogether?

[3 marks]

Q31. Factorise 15x + 35y – 40z

[1]

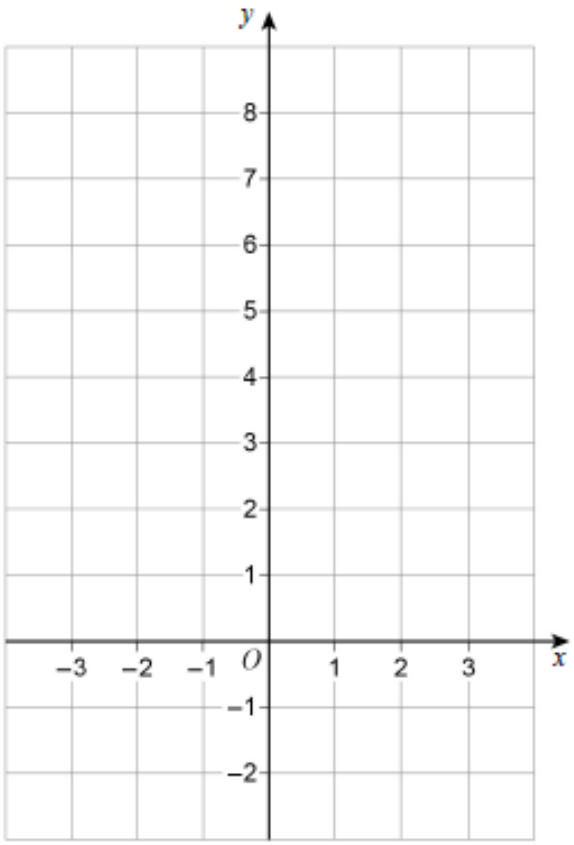
Q32

a. Does the point (2, 9) lie on the line x + y = 4

[1]

(b) Draw the line x + y = 3 for values of x from –3 to 3

[2 marks]



Q33. Expand and simplify (y + 5)(y - 4)

[2]

Q34 Circle the equation with roots 4 and -8

4x(x - 8) = 0 (x - 4)(x + 8) = 0

x^2 - 32 = 0 (x + 4)(x - 8) = 0

[1]