

Grade 4 GCSE questions - due 01/09/2020

Question 1 - (1 marks available)

Simplify

$$\frac{6^7}{6^5}$$

leaving your answer in index form.

Question 2 - (2 marks available)

Simplify

$$\frac{7^8 \times 7^3 \times 7^4}{7^9 \times 7^5}$$

Question 3 - (2 marks available)

Find the **lower bound** for the following weights:

- a) 16.4 g correct to 1 decimal place.
- b) 21.58 g correct to 2 decimal places.

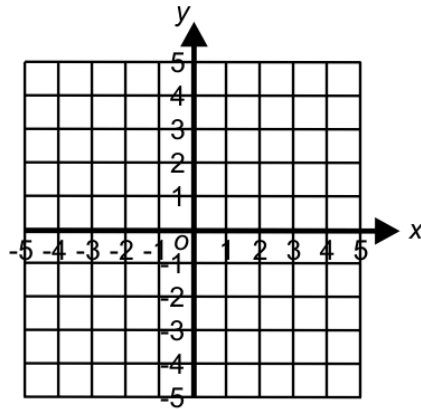
Question 4 - (2 marks available)

A packet of crisps weighs 32 grams to the nearest gram.
A multipack of crisps contains 10 packets.

Work out the least and greatest weights of the multipack.
You can ignore the weight of the multipack wrapper.

Question 5 - (2 marks available)

Find the midpoint of A and B where A has coordinates $(-3, -5)$ and B has coordinates $(4, 4)$.



Question 6 - (2 marks available)

Expand and simplify $2(5x + 4) + 3(2x - 1)$

Question 7 - (2 marks available)

Multiply out and simplify $(x - 6)^2$

Select your answer.

$x^2 - 6x + 36$ $x^2 + 12x - 36$ $x^2 - 12x + 36$ $x^2 - 12x - 36$

A

B

C

D

Question 8 - (1 marks available)

Which equation has the solution $x = 4$?

$4x = 20$ $\frac{x}{2} = 8$ $x + 8 = 3x$ $x = \frac{x+5}{2}$

A

B

C

D

Question 9 - (2 marks available)

Make s the subject of the formula

$$t^2 = 2p + as$$

Choose the correct answer.

A $s = \frac{t^2 - a}{2p}$ B $s = \frac{t^2 + 2p}{a}$ C $s = \frac{t^2}{a} + 2p$

D $s = \frac{t^2}{a} - 2p$ E $s = \frac{t^2 - 2p}{a}$

Question 10 - (2 marks available)

Straws are sold in packs and boxes.

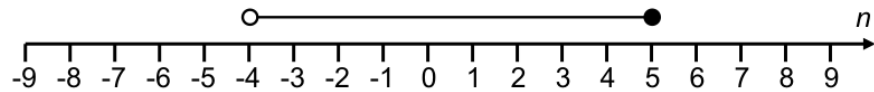
There are 15 straws in each pack.
There are 48 straws in each box.

Tricia buys p packs of straws and b boxes of straws.

Write down an expression in terms of p and b ,
for the total number of straws bought by Tricia.

Question 11 - (2 marks available)

What is the inequality shown?

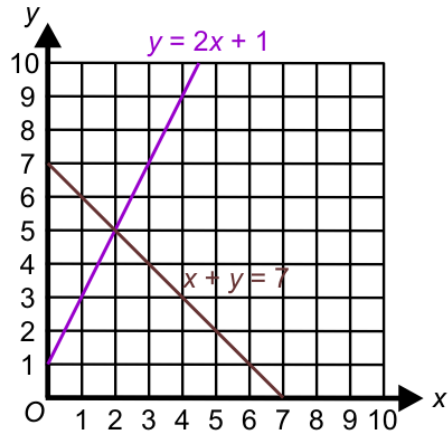


Question 12 - (2 marks available)

Solve the inequality $4x - 7 < 5$

Question 13 - (2 marks available)

Use the graphs to solve the simultaneous linear equations
 $y = 2x + 1$ and $x + y = 7$



Question 14 - (2 marks available)

A Fibonacci sequence begins 1, 1, 2, 3, 5, 8, ...

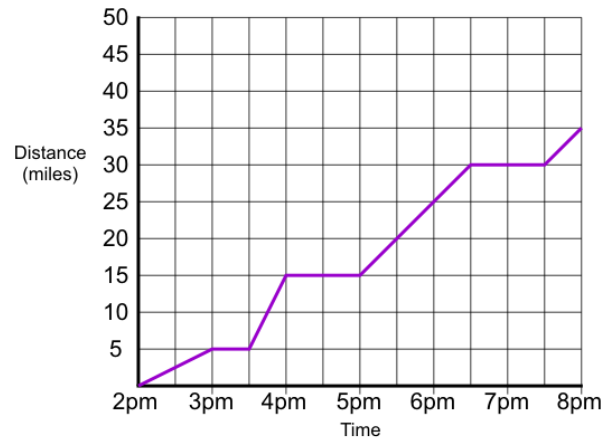
- What is the 7th number in the sequence?
- What is the 9th number in the sequence?

Question 15 - (2 marks available)

Colin walked a distance of 15 miles in 6 hours.
Work out Colin's average speed.
Give your answer in miles per hour.

Question 16 - (2 marks available)

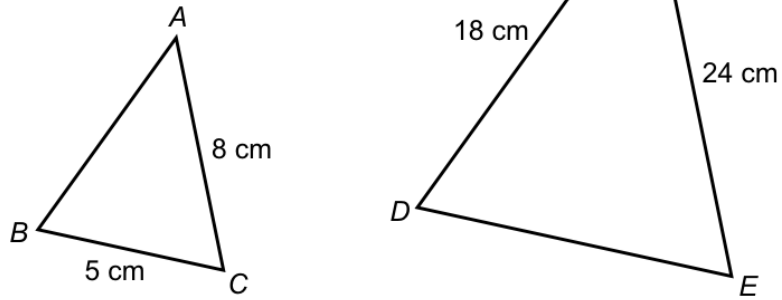
This distance-time graph represents a journey made by Sue
Work out how much time Sue spends travelling and how much
time she spends stationary.



Question 17 - (2 marks available)

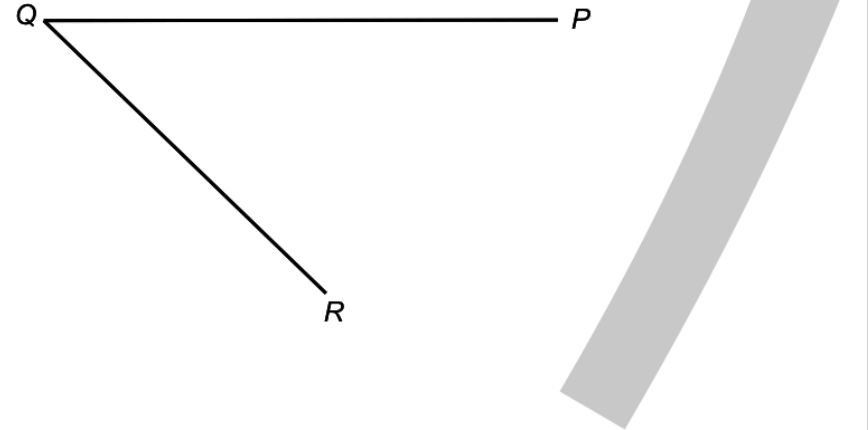
Triangles ABC and CDE are mathematically similar.

- Work out the length of DE .
- Work out the length of AB .



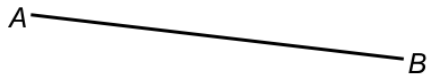
Question 18 - (2 marks available)

Use ruler and compasses to bisect angle PQR .
Please make your line long enough to end in the shaded area.



Question 19 - (2 marks available)

Use ruler and compasses to bisect line AB .



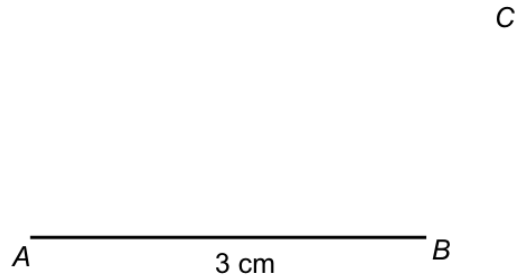
Question 20 - (2 marks available)

Use ruler and compasses to draw a line which is perpendicular to line AB at point C .



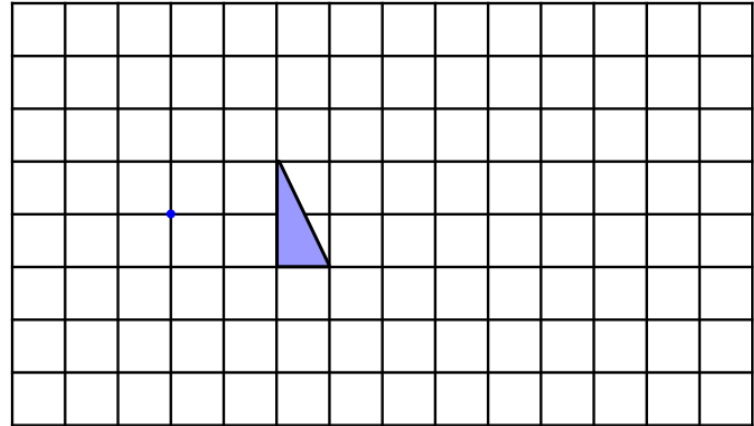
Question 21 - (2 marks available)

Use ruler and compasses to draw a triangle ABC with:
 AB of length 3 cm, AC of length 4.5 cm and BC of length 2 cm.



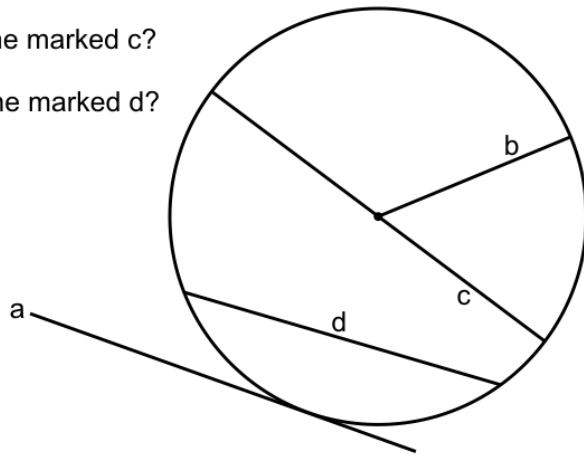
Question 22 - (3 marks available)

Enlarge the triangle by scale factor 3 using the blue dot as the centre of enlargement.



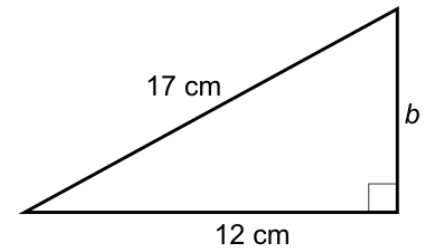
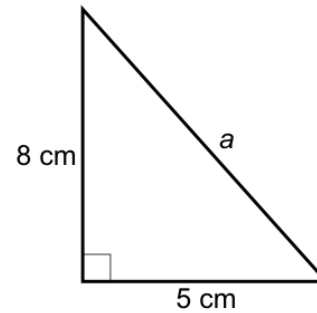
Question 23 - (4 marks available)

- What is the name of the line marked a ?
- What is the name of the line marked b ?
- What is the name of the line marked c ?
- What is the name of the line marked d ?



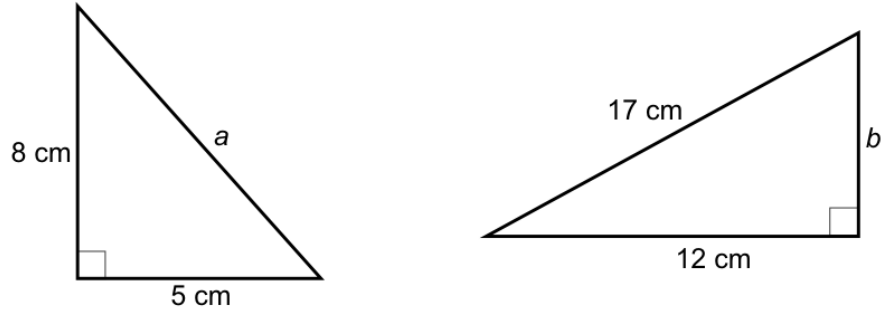
Question 24 - (6 marks available)

Work out the lengths of sides a and b .
Give your answers to 1 decimal place.



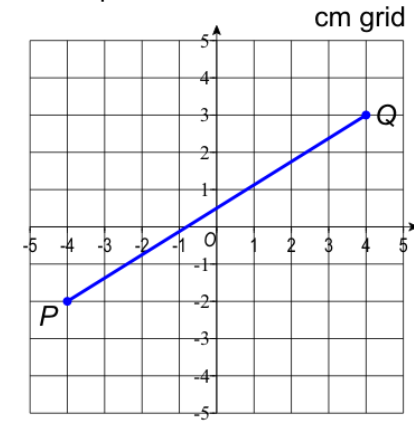
Question 25 - (6 marks available)

Work out the lengths of sides a and b .
Give your answers to 1 decimal place.



Question 26 - (2 marks available)

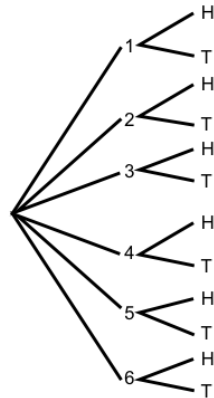
Point P has coordinates $(-4, -2)$ and point Q has coordinates $(4, 3)$.
Calculate the shortest distance between P and Q .
Give your answer to 1 decimal place.



Question 27 - (2 marks available)

Helen rolls a dice and flips a coin.

Calculate the probability that she gets a 4 and a tail.



Question 28 - (2 marks available)

Skyler goes to a school which has 1000 students in it.
She asks 40 random students whether they like the new 8.30 am start to the day.
30 of them say 'no' they do not like it.

Use this information to estimate how many students in the whole school dislike the 8.30 am start.