



Corbettmaths

100 Days to Go  
GCSE Higher  
Revision Questions

Part 3

100 Days to Go



Answers

See 9 Days  
to Go

1. (a) Simplify



$$\frac{x^2 - 4x - 32}{5x^2 - 41x + 8}$$

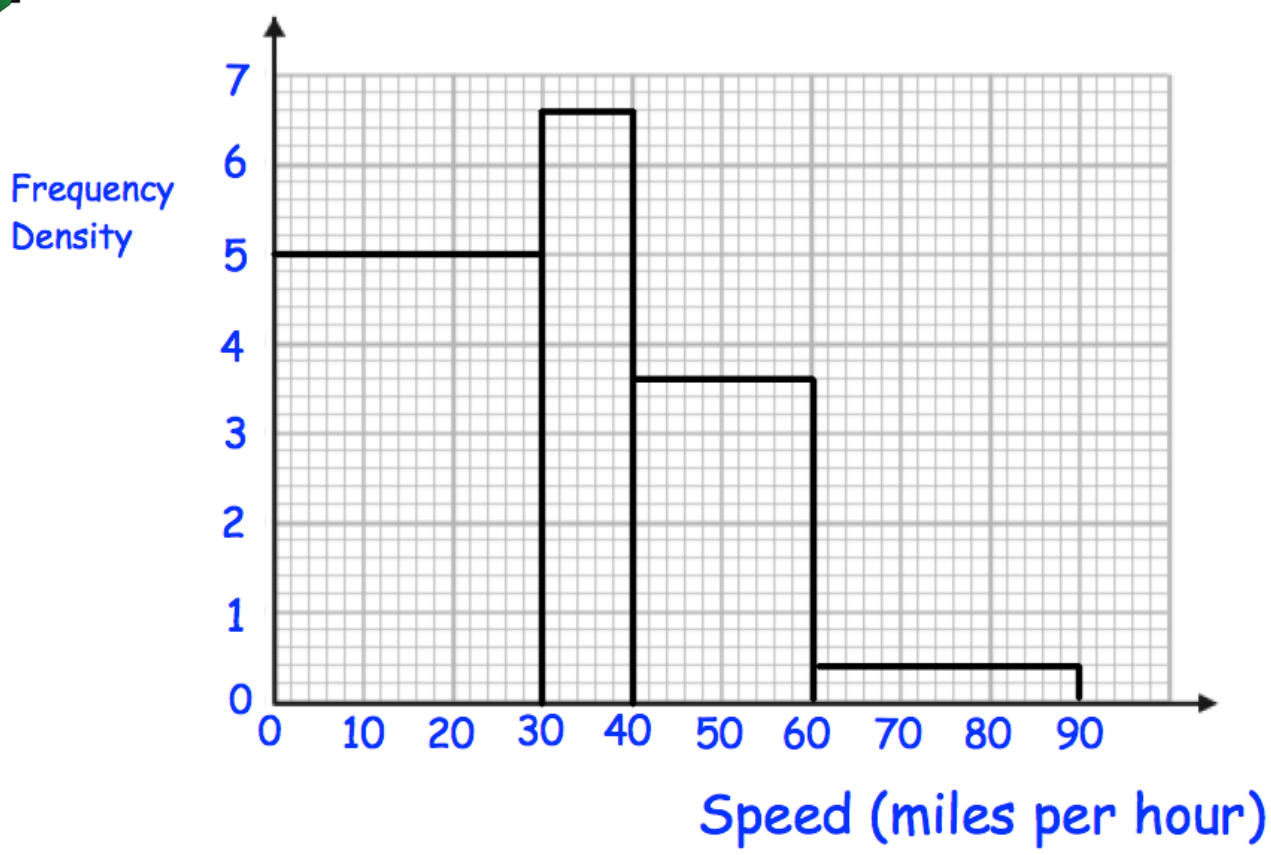
.....  
(3)

(b) Express as a single fraction

$$\frac{9}{x-3} - \frac{2}{x+1}$$

.....  
(3)

2. The histogram shows information about the speeds, in miles per hour, that cars travelled through a village.



Work out the percentage of cars that travelled 30mph or less.

.....  
(3)

3. H is directly proportional to the cube of c.  
When  $H = 480$ ,  $c = 2$



(a) Express H in terms of c.

$$H = \dots\dots\dots$$

**(3)**

(b) Find the value of H when  $c = 5$

$$H = \dots\dots\dots$$

**(1)**

(c) Find the value of c when  $H = 30000$

$$c = \dots\dots\dots$$

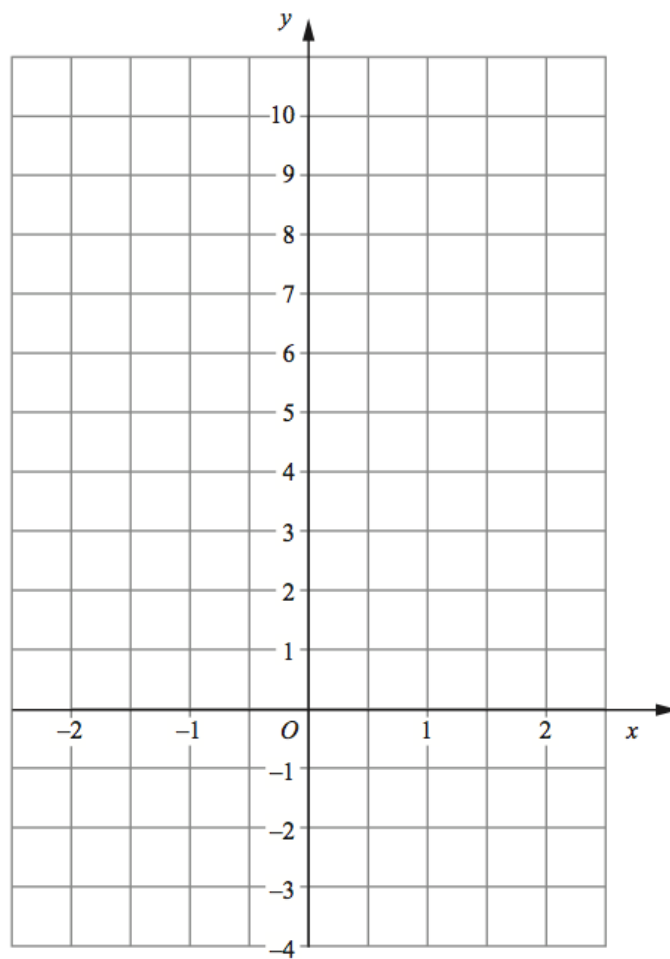
**(1)**

4. Find the exact value of  $\sin(45^\circ) + \sin(60^\circ)$



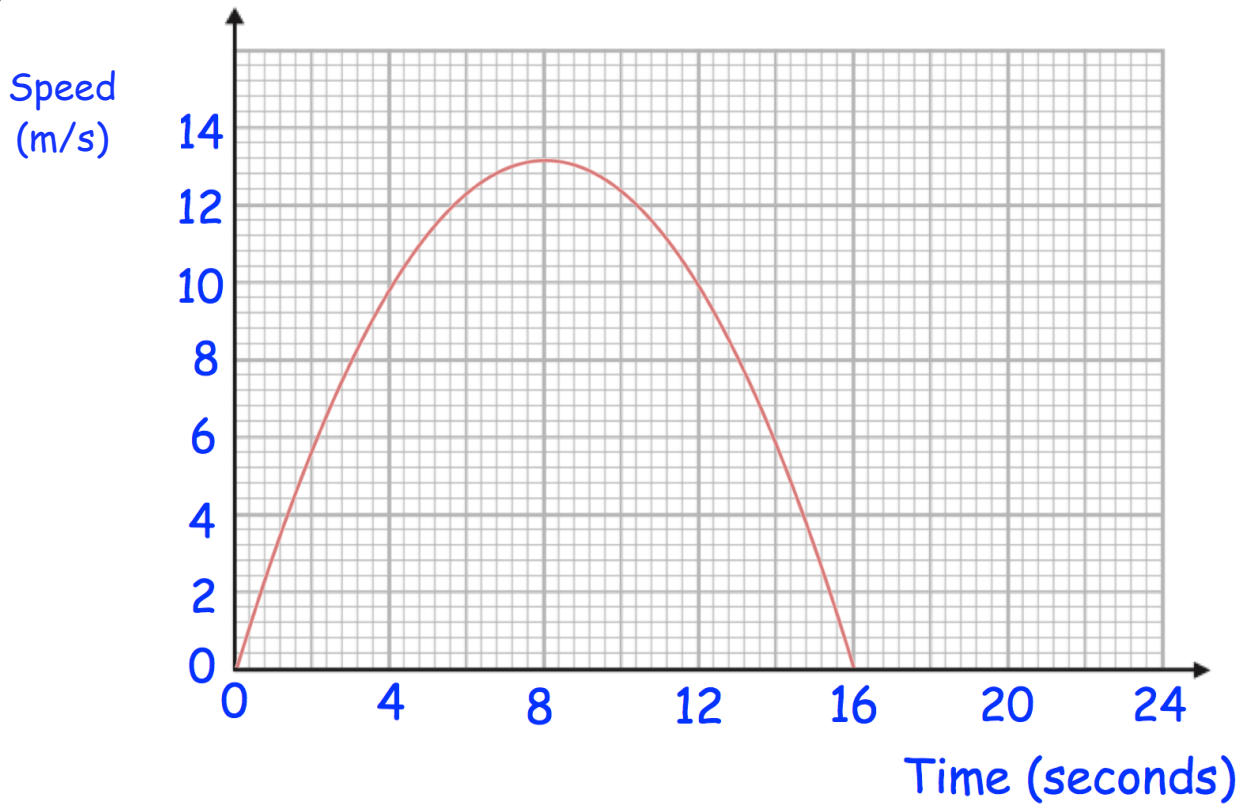
.....  
**(3)**

5. Draw the graph of  $y = \left(\frac{1}{2}\right)^x$  for values of  $x$  from  $-2$  to  $2$



**(2)**

6. Here is a speed-time graph for a toy rocket.



- (a) Work out an estimate for the distance the rocket travelled in the 16 seconds. Use 4 strips of equal width.

.....m  
(3)

- (b) Is your answer to (a) an underestimate or an overestimate of the actual distance the rocket travelled?  
Give a reason for your answer

.....  
.....  
(1)

7. The first 5 terms in a number sequence are



14    11    8    5    2    ...    ...

(a) Work out the  $n$ th term of the sequence.

.....  
(2)

(b) Find the 50<sup>th</sup> term of the sequence.

.....  
(2)

8. The functions  $f(x)$  and  $g(x)$  are given by the following:



$$f(x) = 8x + 3$$

$$g(x) = 2x - 1$$

(a) Find  $f^{-1}(x)$

.....  
(2)

(b) Find  $g^{-1}(x)$

.....  
(2)

9. Write  $x^2 + 4x + 7$  in the form  $(x + a)^2 + b$ , where  $a$  and  $b$  are constants.



.....  
**(3)**

---

10. The mass of  $3\text{m}^3$  of tin is 21840kg.



(a) Work out the density of tin.

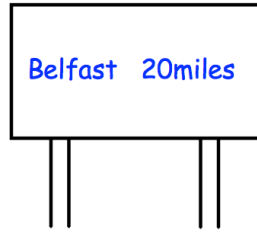
.....kg/m<sup>3</sup>  
**(2)**

The density of lead is 11400kg/m<sup>3</sup>.

(b) Work out the difference in mass between  $5\text{m}^3$  of tin and  $5\text{m}^3$  of lead.

.....kg  
**(3)**

11.



A village is 20 miles from Belfast.

Conor drives from the village to Belfast at 50mph

Kelly drives from the village to Belfast at 60mph

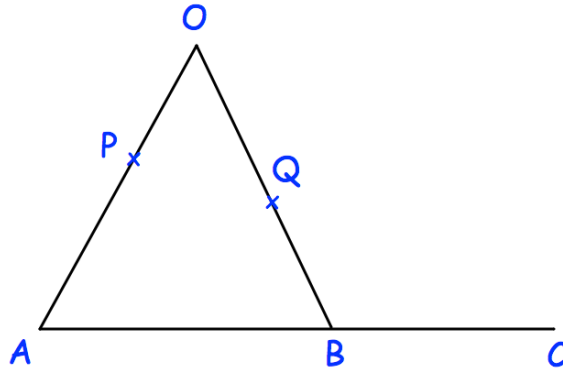
Work out how much longer the journey takes Conor.

Give your answer in minutes.

.....minutes

**(3)**

12.



AOB is a triangle.  
P is a point on AO.

$$\overrightarrow{AB} = 2\mathbf{a}$$

$$\overrightarrow{AO} = 6\mathbf{b}$$

$$AP:PO = 2:1$$

(a) Find the vector  $\overrightarrow{OB}$  in terms of  $\mathbf{a}$  and  $\mathbf{b}$

.....  
(1)

Q is the midpoint of OB.  
B is the midpoint of AC.

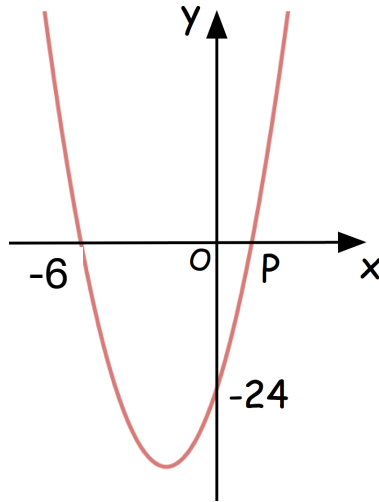
Show PQC is a straight line.

(3)

13. Below is a sketch of the graph  $y = x^2 + bx + c$



The curve passes through the points  $(-6, 0)$ ,  $(0, -24)$  and  $(P, 0)$



Work out the coordinates of the turning point of the graph.

.....  
(5)

14. S is a geometric sequence



The first three terms of S are  $(x + 24)$ ,  $x$  and  $(3x - 32)$ , where  $x$  is positive.

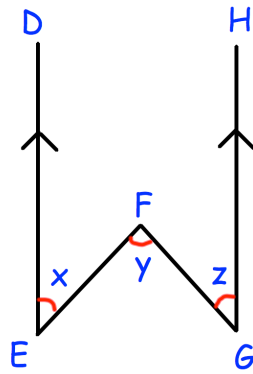
(a) Find the value of  $x$ .

.....  
**(3)**

(b) Find the 5th term of S

.....  
**(1)**

15. In the diagram below, the lines ED and GH are parallel.



Prove that  $x + z = y$

(3)