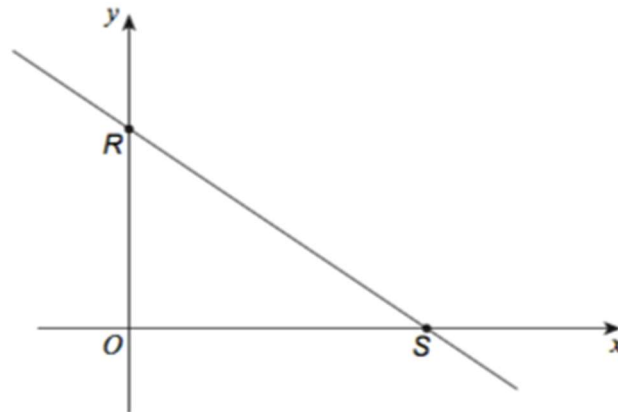


Yr 11 PRD work

Question 1

A sketch of $2x + 3y = 12$ is shown.



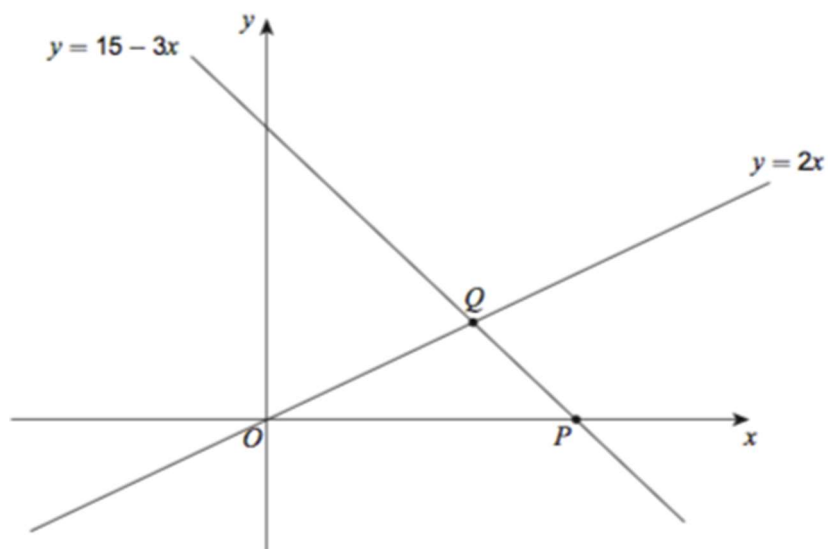
Work out the coordinates of R.

.....

(1 mark)

Question 2

The sketch graphs of two straight lines are shown.



Work out the coordinates of P.

.....
(1 mark)

Question 3

A straight line with equation $y = mx + c$ has gradient m and y -intercept c .

Here are the equations of four straight lines, P, Q, R and S.

P $2y - 4x = 5$

Q $5y = 2x - 4$

R $2y - 4 = 5x$

S $4y = 5 - 2x$

Select the line that passes through (7,2)

☐ P

☐ Q

☐ R

☐ S

(1 mark)

Question 4

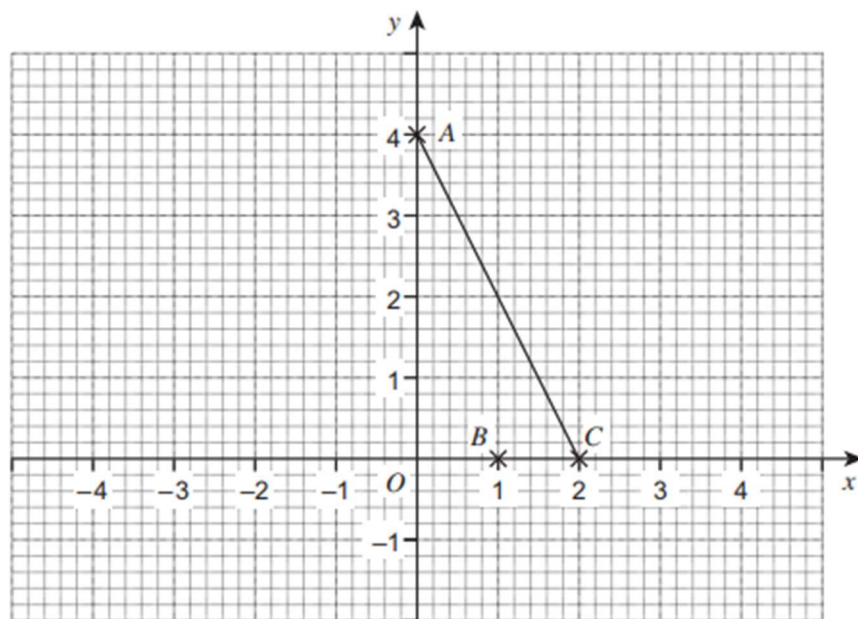
Write down the equation of the straight line that

passes through the point (0,4)

and

is parallel to the line $y = 5x + 3$.

.....
(2 marks)

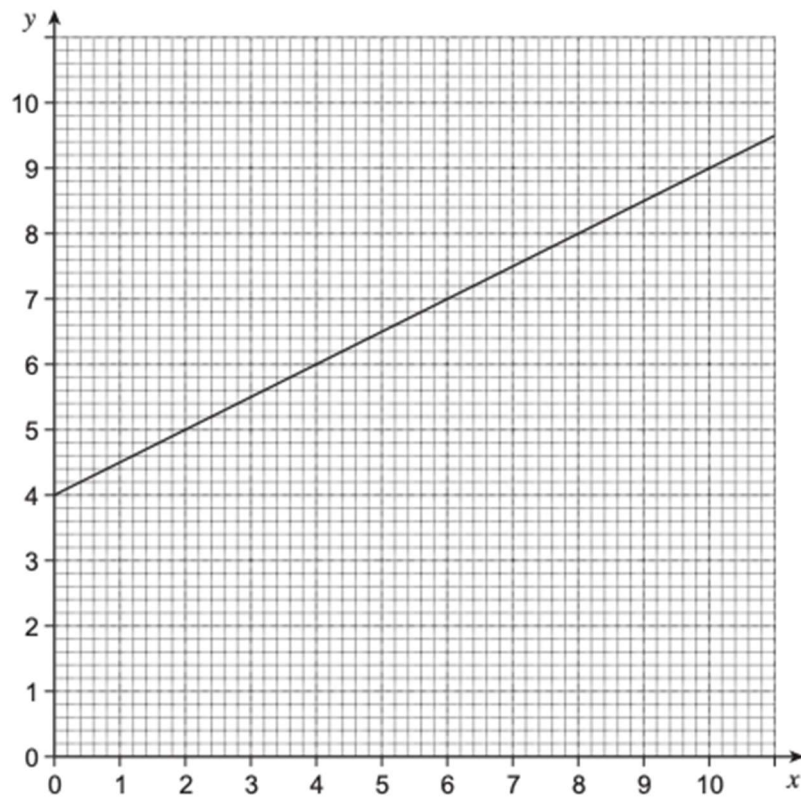
Question 5

Find an equation of the line through B parallel to AC .

.....

Question 6

Work out the equation of the line shown.



.....

(3 marks)

Question 7

A straight line has gradient -2 and passes through the point $(-3, 10)$.

Work out the equation of the line.

Give your answer in the form $y = mx + c$

.....

(2 marks)

Question 8

Work out the equation of the straight line that passes through the points $(2, 0)$ and $(0, -4)$.

.....
(3 marks)

Question 9

Select the two equations that are equivalent to $2y = 3x + 4$

☐ $2x = 3y + 4$

☐ $y - \frac{3}{2}x = 2$

☐ $y = \frac{3}{2}x + 4$

☐ $3x - 2y + 4 = 0$

(2 marks)

Question 10

Determine the distance between $A(-5, -4)$ and $B(-7, -1)$, giving your answer as an **exact value**.

.....

Question 11

Determine the distance between $A(2, -3)$ and $B(3, 2)$, giving your answer as an **exact value**.

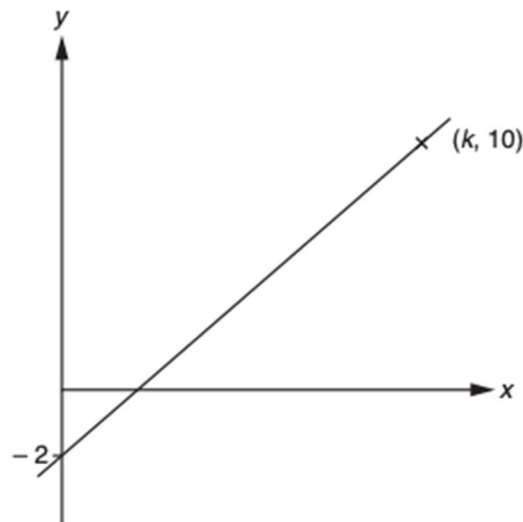
Question 12

Determine the distance between $P(-1,1)$ and $Q(1,-1)$, giving your answer as an **exact value**.

.....

Question 13

The diagram shows the graph of $y = 3x + c$, where c is a constant.



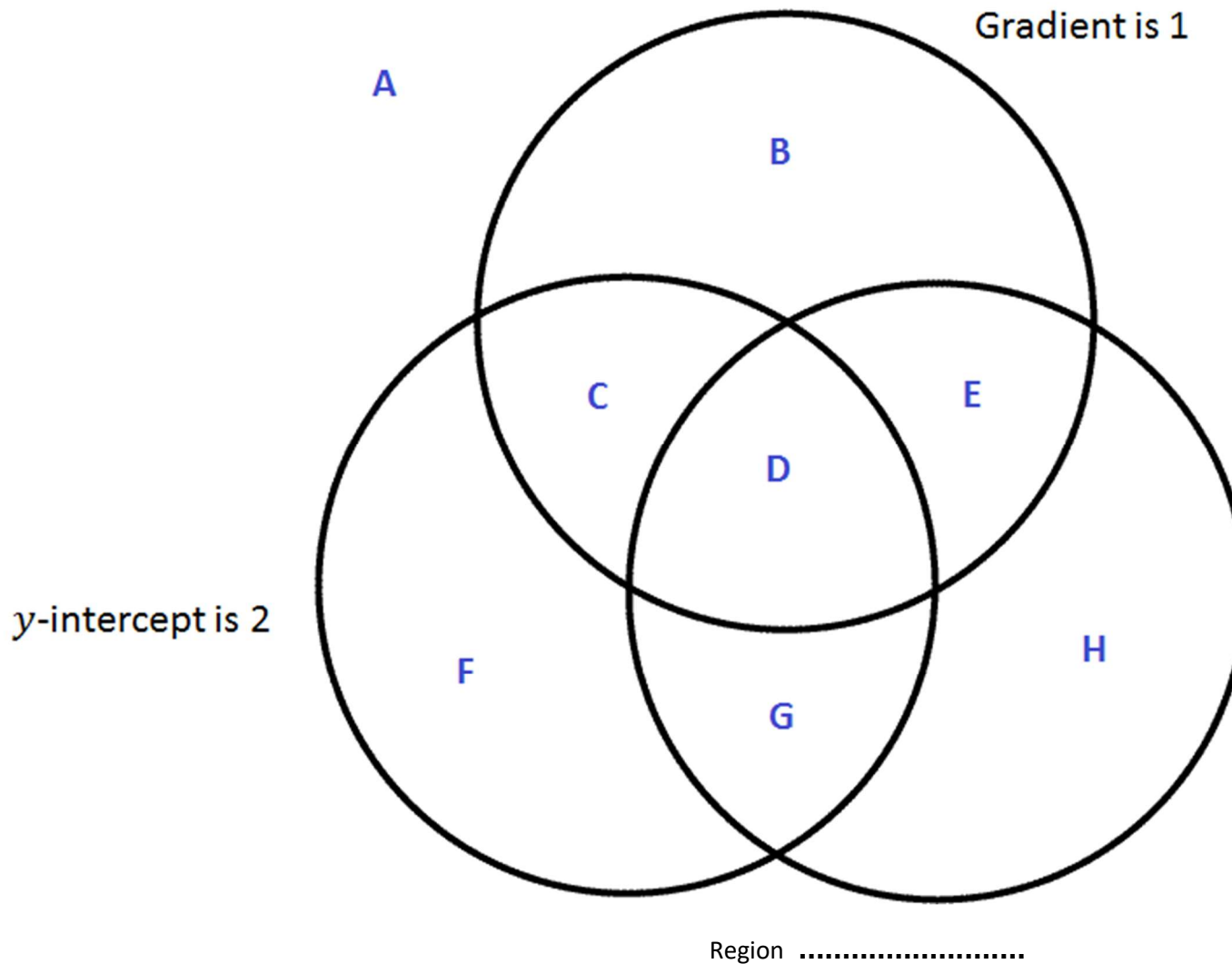
Find the value of k .

.....

(3 marks)

Question 14

In which region would the line represented by the equation $y = \frac{2}{3}x + 2$ be in the following Venn diagram?



Question 15

What is the gradient of the line with equation $x + 2y = 8$?

.....

Question 16

What is the gradient of the line with equation:

$$y = \frac{x - 1}{5}$$

Give your answer in decimal form.

Question 17

A is the point with coordinates $(1, 3)$ B is the point with coordinates $(-2, -1)$

The line **L** has equation $3y = 4 - 2x$

Is line **L** parallel to AB ?

☐ Yes

☐ No

(3 marks)

Question 18

What is the gradient of the line with equation:

$$\frac{3}{5}y = 4 + \frac{2}{7}x$$

Question 19

What is the y -intercept of the line with equation:

$$y + 1 = \frac{3 - x}{5}$$

Give your answer in decimal form.

Question 20

The equation of a line **L** is $2x - 3y = 6$

Find the equation of the line which is parallel to **L** and passes through the point $(6, 9)$.

.....

(2 marks)

Answers

Question 1

(0,4)

(0, 4)

B1

Question 2

(5,0)

(5, 0)

B1

(5x, 0y) is B0

Check diagram for answer written next to *P*
if answer line is blank

Question 3

Q

Q

B1

Question 4

$$y = 5x + 4$$

14	$y = 5x + 4$	B2	oe B1 for $y = mx + 4$ or $y = 5x + c$, $c \neq 3$ or $5x + 4$
	Additional Guidance		
	$y = 5x$		B1
	$y = 4$		B1
	$y = 5x - 3$		B1
	$y = 5x + 3$		B0
	$5x + 1$		B0

Question 5

$$2x + y = 2$$

Question 6

$$y = \frac{1}{2}x + 4$$

Attempt to work out gradient	M1	e.g. $3 \div 6$ seen oe Right-angled triangle drawn on diagram
$m = \frac{1}{2}$ or $c = 4$ seen or implied	M1	e.g. $\frac{1}{2}x + 4$ oe Gradient = $\frac{1}{2}$ or Intercept = 4
$y = \frac{1}{2}x + 4$	A1	oe

Question 7

$$y = -2x + 4$$

$10 = -2(-3) + c$ or $c = 4$	M1	$y - 10 = -2(x - (-3))$ or $y = -2x + c$
$y = -2x + 4$	A1	

Question 8

$$y = 2x - 4$$

y-intercept = -4	M1	oe May be implied from equation or expression
Gradient = 2 or $(m =) \frac{0 - -4}{2 - 0}$ or 2 or $0 = 2m - 4$	M1	oe May be implied from equation or expression
$y = 2x - 4$	A1	oe

Question 9

$$"y - \frac{3}{2}x = 2" \text{ and } "3x - 2y + 4 = 0"$$

B and D	B2	B1 for 1 correct (and 1 incorrect) or 2 correct and 1 incorrect
---------	----	--

Question 10

$$\sqrt{13}$$

Question 11

$$\sqrt{26}$$

Question 12

$$2\sqrt{2}$$

Question 13

$$k = 4$$

4

3

B1 for $c = -2$
 or **M1** for $y = 3k - 2$ $k \neq 0$
 And
M1 for $10 = 3k - 2$

Question 14

"G"

Question 15

$$-\frac{1}{2}$$

Question 16

0.2

Question 17

No

eg. $\frac{3-1}{1-2} \left(= \frac{4}{3} \right)$			M1 for gradient of line AB	M1 for $y = \frac{4}{3}x + \frac{5}{3}$	M2 for sketch of L with $(0, \frac{4}{3})$ and
$y = \frac{4}{3} - \frac{2}{3}x$ or $y = \frac{4-2x}{3}$ or $(m =) - \frac{2}{3}$			M1	M1 for $\frac{4}{3}x + \frac{5}{3} = \frac{4}{3} - \frac{2}{3}x$ oe	$(2, 0)$ marked on axes AND $(1, 3)$ and $(-2, -1)$ joined
	No with reason	3	A1	accept no with $-\frac{2}{3}$ (or $-0.666\dots$) and $\frac{4}{3}$ (or $1.333\dots$) $-\frac{2}{3}$ and $\frac{4}{3}$ may be seen as coefficients of x in $y = mx + c$ OR shows that $3y = 4 - 2x$ and line through AB $(y = \frac{4}{3}x + \frac{5}{3})$ intersect at $x = -\frac{1}{6}$ or $y = \frac{13}{9}$ OR L has a negative gradient (with evidence), line AB has a positive gradient (with evidence) NB: Any value given for a gradient must be correct	

Question 18

$$\frac{10}{21}$$

Question 19

-0.4

Question 20

$$y = \frac{2}{3}x + 5$$

$9 = \frac{2}{3}x + c$		2	M1	for correct substitution into $y = \frac{2}{3}x + c$ using their answer to (a) oe	SC Award B2 if $y - 9 = \frac{2}{3}(x - 6)$ seen; then isw
	$y = \frac{2}{3}x + 5$		A1	for $y = \frac{2}{3}x + 5$ oe inc $2x - 3y = -15$ ft from their answer to (a)	SC Award B1 for $2x - 3y = k$ where $k \neq -15$ and $k \neq 6$ with no working
				SC If M0 A0, award B1 for answer with 'y=' omitted which would otherwise score M1 A1 eg $\frac{2}{3}x + 5$, $2x - 3$ if ans to (a) is 2	SC If M0 A0, award B1 for $y = \frac{2}{3}x + c$ where $c \neq 5$ or $c \neq 0$ (ie do not award this mark for $y = \frac{2}{3}x + 5$ or $y = \frac{2}{3}x$) or does not fit from (a)