

1)

a. Express as a single fraction.

a) $\frac{5}{7} - \frac{2}{5}$

Answer: _____ [1]

b) $1\frac{1}{5} \div 2\frac{1}{3}$

Answer: _____ [1]

b. Work out.

a) $12 + 8 \div (9 - 5)$

Answer: _____ [1]

b) $0.018 \div 0.06$

Answer: _____ [1]

2)

a. Solve $-7 \leq 3x - 4 < 2$

Answer _____ [2]

b. Write down all the integers that satisfy $-7 \leq 3x - 4 < 2$

Answer _____ [2]

c. In $\triangle ABC$, $AB = 17$ cm, $AC = 8$ cm and $BC = 15$ cm. find the area of $\triangle ABC$.

Answer: _____ [3]

d. Using the rule $y = x + 4$, obtain a set of ordered pair of values of x from $x = 2$ to 5 .

Answer..... [4]

3)

a. Find the subsets of $B = \{4, 8, 9\}$.

Answer..... [4]

b. Draw a Venn diagram to show:

a) The union and

b) The intersection

When $A = \{x: x \text{ is an even number less than } 10\}$

$B = \{x: x \text{ is } 2, 4 \text{ and } 8\}$

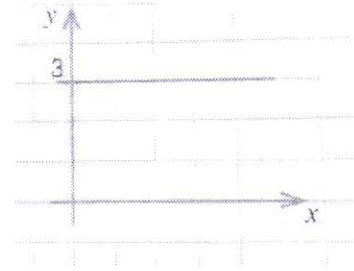
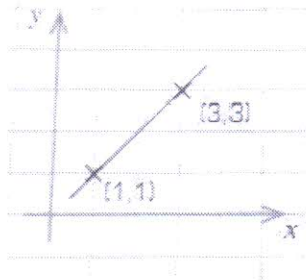
[4]

4)

a. Find the equations of the following lines:

i.

ii.



[4]

5)

a. A straight line has an equation $y = 7 - 5x$. What is the

a) Gradient and

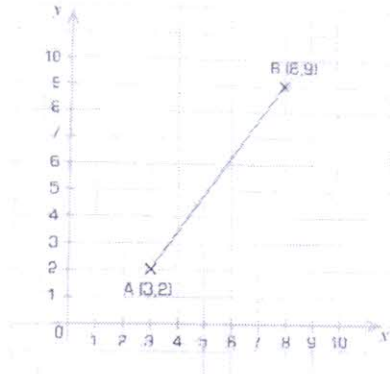
b) The y-intercept

Answer: Gradient: _____, y - intercept _____ [3]

b. What is the mid-point of a line joining the points $(-3, -4)$ and $(5, 8)$?

Answer: mid - point = _____ [2]

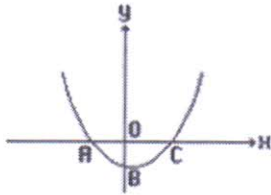
- c. A line AB has been formed by joining the points A (3, 2) and B (8, 9) together. What is the mid-point of the line AB?



Answer: mid – point = _____ [2]

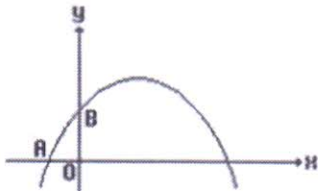
6)

- a. The figure show the curve $y = (2x + 1)(4x - 3)$. Write down the coordinates of A, B and C.



Answer: A= _____, B= _____, C= _____ [4]

- b. The diagram is a sketch of a curve $y = (1 + 2x)(3 - x)$. Write down



- I. The coordinates of A and B,

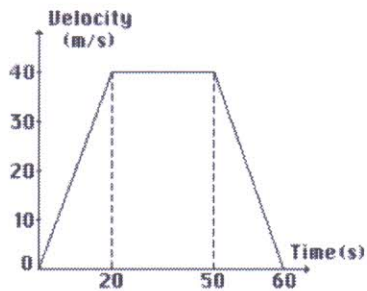
Answer: A = _____, B = _____ [2]

- II. The equation of the line of symmetry of the curve.

Answer: _____ [2]

7)

- a. The figure shows the velocity – time graph of a fast train travelling from station P to station Q . Find the distance, in meters, between stations P and Q .



Answer: _____ [3]

- b. Given that $\epsilon = \{x: x \text{ is a positive integer and } 5 < 3x \leq 28\}$,
 $A = \{x: x \text{ is a multiple of } 3\}$,
 $B = \{x: x \text{ is divisible by } 2\}$,

- a) Find $n(A')$,

Answer: _____ [2]

- b) List the elements of

I. $(A \cup B)'$

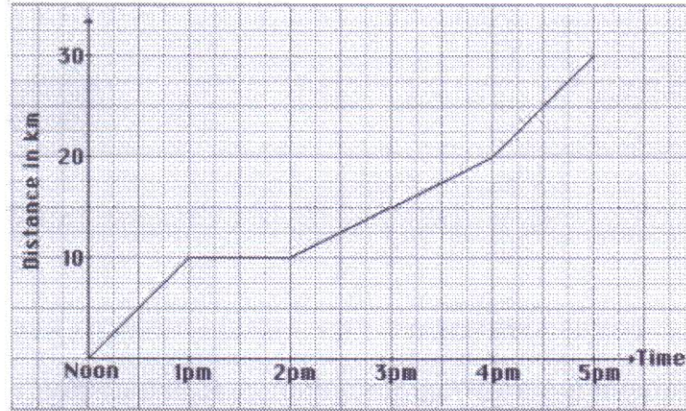
Answer: _____ [2]

II. $(A \cap B)'$

Answer: _____ [2]

8)

a.



The diagram shows the travel graph of Mr Ong travelling from Jurong to visit Mr Chan in Changi. At the same time, Mr Tay starts from Changi to visit his friend Mr Lee in Jurong. Mr Tay travels from Changi to Jurong at a constant speed of 7.5 km/h. When will Mr Ong and Mr Tay meet?

Answer: _____ [3]

b. Use a graphical method to solve the system of equations and inequalities:

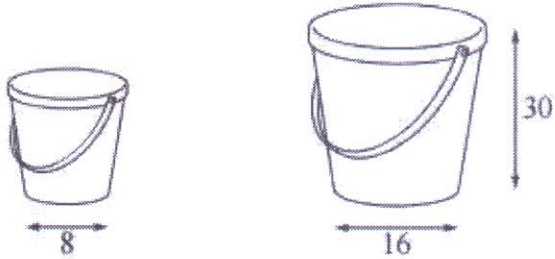
$$y = 2x + 1$$

$$y \leq 3$$

[5]

9)

- a. Similar buckets are available in two sizes. The large bucket has height 30 cm and base diameter 16 cm. The small bucket has base diameter 8 cm.



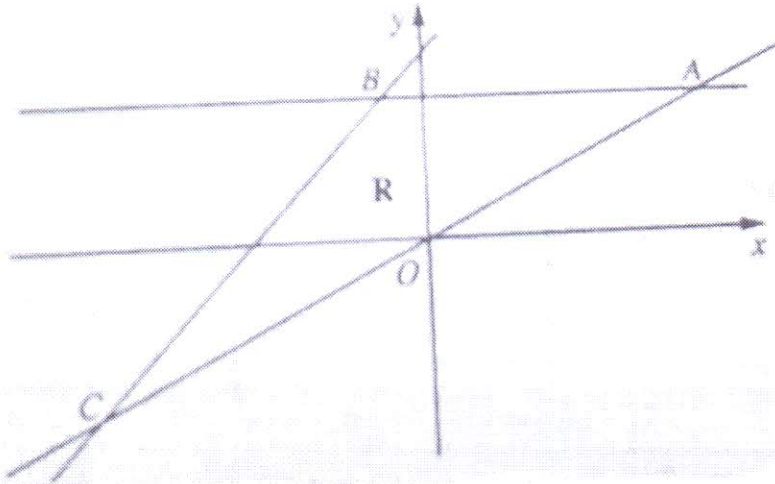
- I. Find the height of the small bucket.

[2]

- II. Given that the small bucket has volume 850 cm^3 , find the volume of the large bucket.

[3]

- 10) In the diagram, A is the point (6,3) and C is the point (-8, -4)



The equation of AB is $y=3$ and the equation of BC is $y = x+4$.

- a. Find the coordinates of B

Answer _____ [2]

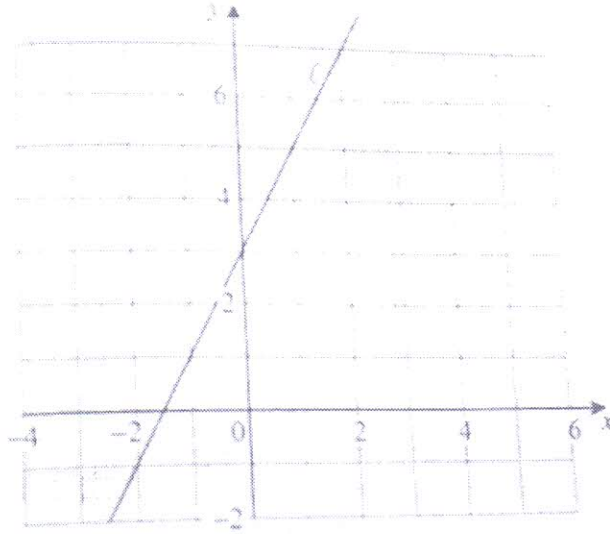
- b. The unshaded region R inside triangle ABC is defined by three inequalities. One of these is $y < x+4$.

Write down the other two inequalities.

Answer _____ [4]

11)

a. The line l is drawn on the grid below.



a) Write down the equation of the line l .

Answer _____ [2]

b) Draw and label the lines $x=1$, $y=3$ and $x+y = 2$. [3]

c) Shade the region that satisfies the three above mentioned inequalities. [2]

b. $F(x) = 2 - 3x$. Find

a) $F(-5)$

_____ [1]

b) $f^{-1}(x)$

_____ [2]