Class Test 2

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Answer all questions. Show your working clearly.

1. The equation of a line is $ax + 2y = 3$.
   (a) This line passes through $(-1, 2.5)$. Find the value of a. [1]
   (b) On a piece of graph paper, draw the graph of $ax + 2y = 3$ for $-3 \leq x \leq 3$. [1]
   (c) Find the value of y when $x = 2.5$. [1]
   (d) On the same graph, draw the line $y = 2.8$. [1]
   (e) Find the coordinates of the point where both lines intersect. [1]

2. By substituting $m = \frac{1}{x}$ and $n = \frac{2}{y}$, solve the following simultaneous equations.

$$\frac{15}{x} + \frac{4}{y} = -2$$
$$\frac{3}{y} - \frac{7}{2x} = 1\frac{9}{20}$$

[3]

3. Using the substitution method, solve the following simultaneous equations.

   (a) $\frac{y-4}{3} = \frac{x+3}{5}$
   $\frac{2x+1}{10} = \frac{y}{14}$ [2]

   (b) $2y + \frac{4}{5}x = 2$
   $7x + 3y = -14\frac{2}{5}$ [2]

4. Twelve years ago, Brian's age was 4.5 times the age of his daughter. Now, the sum of their ages is 90 years. Find the difference between their ages. [2]

5. Using the elimination method, solve the following equations.

   (a) $3x - 8y = -19$
   $-5x + 4y = -1$ [2]

   (b) $-\frac{x}{4} + \frac{y}{3} = \frac{8}{3}$
   $\frac{2}{5}y - 3x = -7\frac{3}{5}$ [2]

6. A shopkeeper purchases 296 notebooks and pens. One pen costs \$0.45 and one notebook costs \$2.20. The total cost is \$280.20.
   (a) By constructing algebraic expressions, find the number of notebooks and the number of pens purchased. [2]
   (b) Each pen is sold at \$0.80 and each notebook is sold for a 50% profit. Find the total profit from the sale of the notebooks and pens. [1]

7. (a) (i) Given the equation $\frac{3}{2}x - 2y = \frac{1}{5}$, copy and complete the following table.

x	–2	0	2	4
y				

[2]

(ii) Draw the graph of $\frac{3}{2}x - 2y = \frac{1}{5}$ for $-2 \leqslant x \leqslant 4$. [1]

(iii) Given that $\left(\frac{p}{2}, 2.3\right)$ is a solution of the equation, find the value of p. [1]

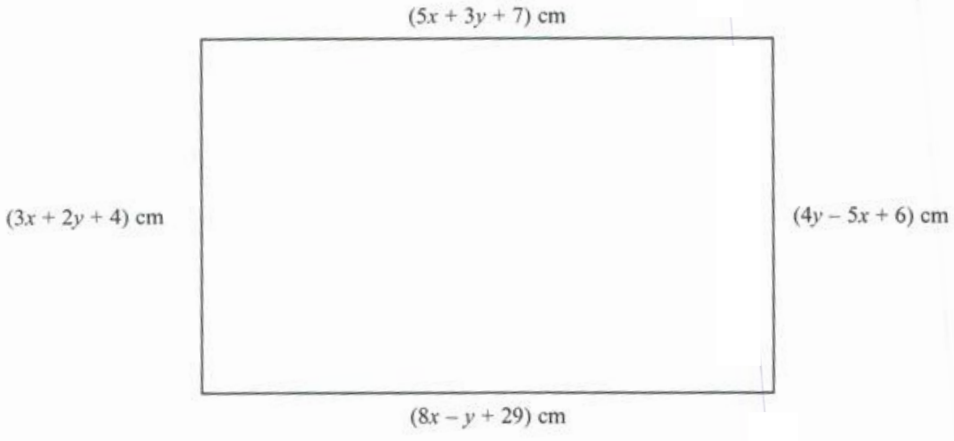
(b) The equation of another line is $y = \frac{2}{5}x + \frac{3}{5}$. Draw the graph of this line on the same axes. [1]

(c) Using the graph, solve the following simultaneous equations.

$\frac{3}{2}x - 2y = \frac{1}{5}$

$5y - 2x = 3$ [1]

8. The figure below shows a rectangle.



Find the area of the rectangle. [3]