1.

(a) Circle the fraction that is equivalent to $\frac{3}{4}$.

$$\frac{9}{15} \qquad \frac{21}{32} \qquad \boxed{\frac{15}{20}} \qquad \frac{6}{10}$$

(1)

(b) Circle the number that is not equivalent to $\frac{2}{5}$.

$$\frac{8}{20} \qquad \frac{10}{25} \qquad \frac{12}{30} \qquad \boxed{0.2}$$

(1)

2.

(a) Circle the value of tan(60).

$$\sqrt{2} \qquad \boxed{\sqrt{3}} \qquad 0.25 \qquad 1$$

(1)

(b) Given that sin(a) = x, circle the value that x cannot be.

$$\boxed{\sqrt{2}} \qquad -0.5 \qquad 0.5 \qquad 1$$

(1)

(c) On the axis below, plot the graph of $y = \cos(x)$ for $x = 0$ to 360.
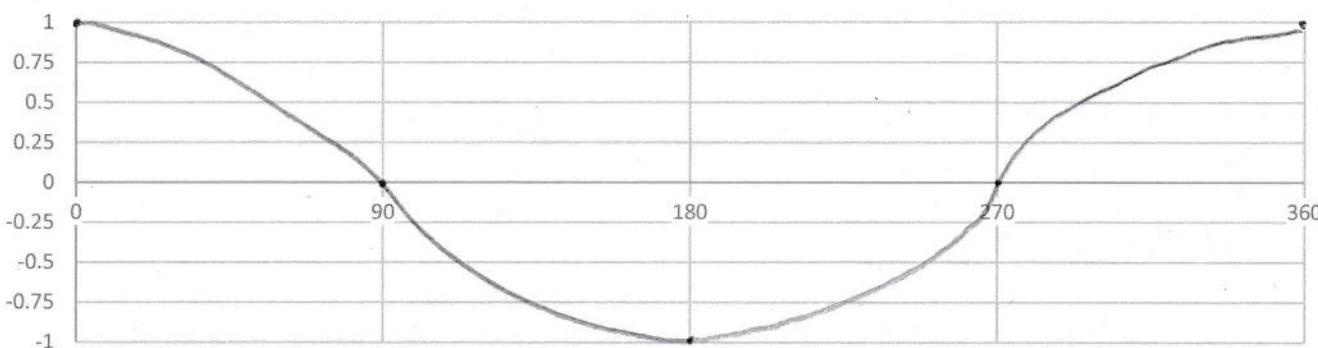
(2)

3.

Solve the simultaneous equations:

$2x + y = 15$ $\times 2$ $4x + 2y = 30$

$3x - 2y = 12$ $+$ $\underline{3x - 2y = 12}$

$\div 7 \quad 7x = 42 \quad \div 7$

$x = 6$

$2 \times 6 + y = 15$

$12 + y = 15$

$-12 \qquad\qquad -12$

$y = 3$

$\boxed{\begin{array}{l} x = 6 \\ y = 3 \end{array}}$

(3)

4.

The heights of a group of men are shown on the below box plot.
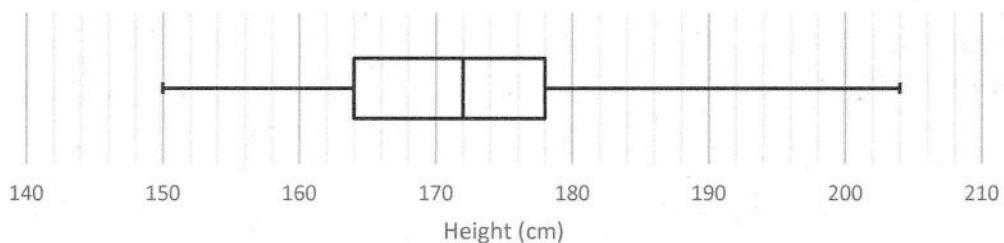

Height (cm)

A group of women have a median height of 164 cm, a minimum height of 142 cm and a maximum height of 188 cm.

The upper quartile of the women is 170 cm, and the interquartile range is the same as the men's.

$$IQR = 178 - 164 = 14$$

(a) On the axis below, draw a box plot for the women.
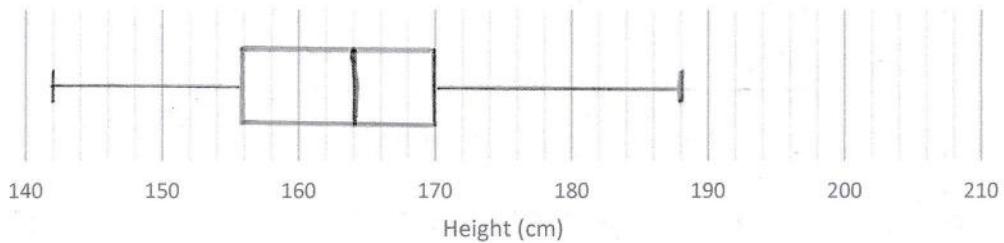
Height (cm)

(3)

(b) What percentage of the women have a height less than 156 cm?

$$25\%$$

(1)

5.

Solve $2y^2 - 5y - 12 > 0$

$$x \quad -24$$
$$+ \quad -5$$

$$2y^2 - 8y + 3y - 12$$

$$2y(y-4) + 3(y-4)$$

$$(2y+3)(y-4) > 0$$

$$y < \frac{-3}{2}$$
$$\text{or}$$
$$y > 4$$

(4)

6.

Find x.

$$\frac{16^{x-2}}{8^x} = 64$$

$$\frac{(2^4)^{x-2}}{(2^3)^x} = 2^6$$

$$\frac{2^{4x-8}}{2^{3x}} = 2^6$$

$$4x - 8 - 3x = 6$$

$$x - 8 = 6$$

$$+8 \qquad +8$$

$$x = 14$$

(4)