



Q1
A

$$\begin{aligned}
 (a) \quad \sqrt{\frac{3^2 + 12^2}{231 - 12^2}} &= \sqrt{\frac{153}{87}} \\
 &= \sqrt{1.75862069} \\
 &= 1.326129967 \\
 &= 1.33 \text{ (3 sig fig)}
 \end{aligned}$$

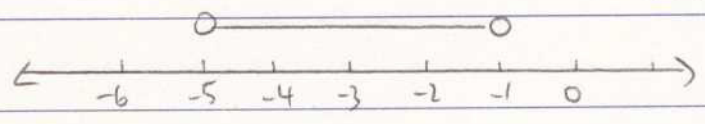
Part B

$$(b) \quad |x+3| < 2$$

$$x+3 < 2 \quad \text{or} \quad -x-3 < 2$$

$$x < -1 \quad \quad \quad -x < 5$$

$$x > -5$$



Part C

$$(c) \quad x^2 - 2x - 8 = 0$$

$$(x-4)(x+2) = 0$$

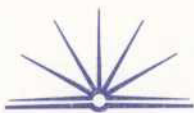
$$x = 4 \quad \text{or} \quad x = -2.$$

Part D

$$(d) \quad \int 3 + \frac{1}{x} dx = 3x + \log_e x + c$$

Part E

$$\begin{aligned}
 (e) \quad \frac{x}{x^2-4} + \frac{2}{x-2} &= \frac{x}{(x-2)(x+2)} + \frac{2}{(x-2)} \\
 &= \frac{x}{(x-2)(x+2)} + \frac{2(x+2)}{(x-2)(x+2)}
 \end{aligned}$$



$$= \frac{x + 2x + 4}{(x-2)(x+2)}$$

$$x = \frac{-2 \pm \sqrt{4 - 4(1)(4)}}{2}$$

$$= \frac{x + 2x + 4}{x^2 - 2}$$

part f

$$(f). \quad 110\% = \$979.$$

$$1\% = \frac{979}{110}$$

$$= \$8.9$$

$$\therefore 100\% = 8.9 \times 100$$

$$= \$890.$$

The original price was \$890.