



Question 1

$$a) \sqrt{\frac{3^2 + 12^2}{231 - 12^2}}$$

$$= \sqrt{\frac{9 + 144}{231 - 144}}$$

$$= \sqrt{\frac{153}{87}}$$

$$= 1.326129967$$

$$= \underline{\underline{1.33}} \text{ (3 significant figures)}$$

$$b) |x + 3| < 2$$

$$x + 3 = 2$$

$$x = 2 - 3$$

$x = -1$ (has to be less than two when sub in.)

$$\therefore \underline{\underline{x \leq -2}}$$



$$c) x^2 - 2x - 8 = 0$$

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

$$\underline{\underline{x = -2}} \text{ or } \underline{\underline{x = 4}}$$



d) primitive of $3 + \frac{1}{x}$

$$= \frac{3x+1}{x}$$

$$= (3x+1) \times x^{-1}$$

$$= 3 + x^{-1}$$

$$= \cancel{3} + x^0$$

$$= 4$$

$$\frac{x^{n+1}}{n+1}$$

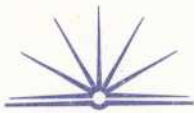
e) $\frac{x}{x^2-4} + \frac{2}{x-2}$

$$\frac{x(x-2) + 2(x-2)(x+2)}{x^2(x-2)}$$

$$= \frac{x^2 - 2x + 2x^2 - 8}{(x^2-4)(x-2)} \rightarrow \frac{x(x-2) + 2(x^2-4)}{(x^2-4)(x-2)}$$

$$= \frac{3x^2 - 2x - 8}{x^3 - 2x^2 - 4x + 8} = \underline{\underline{x+2}} \text{ \& answer.}$$

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



f) Costs \$979 including 10% tax on original price.

$$979 \div 110 = 8.9$$

$$8.9 \times 100 = 890 \quad 10\% \text{ tax paid} = 89$$

Original price of video recorder = \$890