

Start here for
Question Number: **1**

$$\begin{aligned} \text{a) } x^2 &= 4x \\ x^2 - 4x &= 0 \\ x(x-4) &= 0 \end{aligned}$$

$$x = 0 \quad x = 4$$

$$\text{b) } \frac{1}{\sqrt{5}-2} \times \frac{\sqrt{5}+2}{\sqrt{5}+2}$$

$$= \frac{\sqrt{5}+2}{5-4} = \sqrt{5}+2$$

$$= 2 + \sqrt{5}$$

$$a = 2 \quad b = 1$$

$$\text{c) } (x+1)^2 + (y-2)^2 = 25$$

$$\text{d) } |2x+3| = 9$$

$$2x+3 = 9$$

$$2x = 6$$

$$x = 3$$

$$2x+3 = -9$$

$$2x = -12$$

$$x = -6$$

$$\text{e) } x^2 / \tan x$$

$$u = x^2$$

$$v = \tan x$$

$$u' = 2x$$

$$v' = \sec^2 x$$

$$\frac{dy}{dx} = uv' + vu'$$

$$= x^2 \sec^2 x + 2x \tan x$$

$$f) \lim = \frac{a}{1-r}$$

$$r = -\frac{1}{3}$$

$$a = 1 - \frac{1}{3}$$

$$= \frac{\left(1 - \frac{1}{3}\right)}{1 - \frac{1}{3}} = 1$$

$$g) D: x \geq 0$$

Additional writing space on back page.