

Start here for

Question Number: 1

$$a) \quad x^2 = 4x$$

$$x^2 - 4x = 0$$

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

$$x = 0 \text{ or } 4$$

$$b) \quad \frac{1}{\sqrt{5}-2} = a + b\sqrt{5}$$

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

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

$$\sqrt{5}+2$$

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

$$c) \text{ the } (-1, 2) \text{ r } 5$$

$$(x+1)^2 + (y-2)^2 = 5^2$$

$$(x+1)^2 + (y-2)^2 = 25$$

$$d) \quad |2x+3| = 9$$

$$2x+3 = 9$$

$$2x = 6$$

$$x = 3$$

$$\text{or } -(2x+3) = 9$$

$$-2x-3 = 9$$

$$-2x = 12$$

$$x = -6$$

$$e) x^2 \tan x$$

$$\text{let } y = x^2 \tan x$$

$$u = x^2 \quad v = \tan x$$

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

$$y' = u \cdot v' + v \cdot u'$$

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

$$= x (x \cdot \sec^2 x + 2 \tan x)$$

$$f) 1 - \frac{1}{3} + \frac{1}{9} - \frac{1}{27} + \dots$$

$$a = 1$$

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

$$S = \frac{a}{1-r}$$

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

$$= \frac{1}{\frac{4}{3}}$$

$$= \frac{3}{4}$$

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$$9) \text{ Let } f(x) = \sqrt{x-8}$$

Domain $x > 8$

