

Start here for
Question Number: **1**

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

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

$$x(x-4)$$

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

$$x=4$$

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

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

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

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

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

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

$$x^2 + 2x + 1 + y^2 - 4y + 4 = 25$$

$$x^2 + y^2 + 2x - 4y + 6 = 25$$

$$x^2 + y^2 + 2x - 4y - 19 = 0$$

$$(x-h)^2 + (y-k) = r^2$$

$$(\overbrace{x+1}^{(x-h)})(\overbrace{x+1}^{(x-h)}) \quad (\overbrace{y-2}^{(y-k)})(\overbrace{y-2}^{(y-k)})$$

$$x^2 + 2x + 1 + y^2 - 4y + 4$$

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

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

$$2x=6$$

$$-2x-3=9$$

$$x=3$$

$$-2x=12$$

$$x=-6$$

$$e) \frac{d}{dx} x^2 \tan x \, dx.$$

$$u \, dv + v \, du$$

$$\frac{d}{dx} = x^2 \cdot \sec x + \tan x \cdot 2x.$$

$$\frac{d}{dx}$$

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

$$f. a=1$$

$$r = -\frac{1}{3} \left(\frac{1}{9} \div -\frac{1}{3} = -\frac{1}{27} \div \frac{1}{9} \right).$$

$$\frac{a(1-r^n)}{1-r}$$

$$\frac{1(1-(-\frac{1}{3})^n)}{1-(-\frac{1}{3})} = \frac{1+\frac{1}{3}^n}{\frac{1}{3}}$$

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$$g) f(x) = \sqrt{x-8} \quad (x-8)^{\frac{1}{2}}$$

$$f(x) = (x-8)^{\frac{1}{2}}$$

$$f'(x) = \frac{1}{2}(x-8)^{-\frac{1}{2}} \times 1$$

$$f'(x) = \frac{1}{2}(x-8)^{-\frac{1}{2}}$$

$$\sqrt{x-8} = 0$$

$$x-8 = 0$$

$$x = 8.$$

~~0.25~~

$$x = 8$$

