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Basic Factoring of Polynomials

M. Abdulla
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Q#1 Factor

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

if you want an "automatic" bullet-proof method with not too much of thought process then use the "Quadratic equation" approach.

i.e.

$$y = ax^2 + bx + c$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

roots of $y = f(x)$

$a = 6$
 $b = 1$
 $c = -2$

$$x = \frac{-1 \pm \sqrt{1 - (4)(6)(-2)}}{(2)(6)} = \frac{-1 \pm \sqrt{1 + 48}}{12} = \frac{-1 \pm 7}{12}$$

$\rightarrow (-1 + 7)/12 = \boxed{1/2}$

$\rightarrow (-1 - 7)/12 = \boxed{-2/3}$

$$y = 6(x - 1/2)(x + 2/3)$$

$$= 2(x - 1/2) \cdot 3(x + 2/3) = (2x - 1)(3x + 2)$$

Answer!

$$y = (2x - 1)(3x + 2)$$

2

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Q#2

Factor → $y = 9x^2 - 24x + 16$

$a = 9$
 $b = -24$
 $c = 16$

roots of $x = f(x)$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$= \frac{+24 \pm \sqrt{576 - (4)(9)(16)}}{(2)(9)}$

$= \frac{24 \pm \sqrt{0}}{18} = \boxed{\frac{4}{3}}$

$y = 9(x - \frac{4}{3})^2 = 3^2(x - \frac{4}{3})^2 = [3(x - \frac{4}{3})]^2$

$y = (3x - 4)^2$

← answer!



the end 😊**