

Quiz #3

① a) $9x^2 - 3x - 2 = 0$
 $(3x-2)(3x+1) = 0$

↓
 $3x-2=0$
 $x = \frac{2}{3}$

↓
 $3x+1=0$
 $x = -\frac{1}{3}$

M -18

A -3

N $-\frac{6}{9}$ $\frac{3}{9}$
 $-\frac{2}{3}$ $\frac{1}{3}$

b) $-(x-1)^2 = -9$

$(x-1)^2 = 9$

$x-1 = \pm\sqrt{9}$

$x = 1 \pm 3$

↓
 $x = 1+3$
 $= 4$

↓
 $x = 1-3$
 $= -2$

c) $-8x = 4x^2 - 1$
 $0 = 4x^2 + 8x - 1$

Need Quad

$$x = \frac{-8 \pm \sqrt{64 - 4(4)(-1)}}{2(4)}$$

$$= \frac{-8 \pm \sqrt{80}}{8}$$

$$= \frac{-8 \pm 4\sqrt{5}}{8}$$

$$x = \frac{-2 \pm \sqrt{5}}{2}$$

Hilroy

$$(2) \quad 2x^2 - 6x = -\frac{18}{4}$$

Need to check discriminant!

$$0 = 2x^2 - 6x + \frac{9}{2}$$

$$\begin{aligned} D &= b^2 - 4ac \\ &= (-6)^2 - 4(2)\left(\frac{9}{2}\right) \\ &= 36 - 36 \\ &= 0 \end{aligned}$$

$$D = 0$$

∴ Only one root

$$(3) \text{ Roots } 2 \pm 5\sqrt{2}$$

Point $(-2, -17)$

$$\begin{aligned} f(x) &= a(x - (2 + 5\sqrt{2}))(x - (2 - 5\sqrt{2})) \\ &= a(x - 2 - 5\sqrt{2})(x - 2 + 5\sqrt{2}) \end{aligned}$$

Sub $(-2, -17)$

$$-17 = a(-2 - 2 - 5\sqrt{2})(-2 - 2 + 5\sqrt{2})$$

$$-17 = a(-4 - 5\sqrt{2})(-4 + 5\sqrt{2})$$

$$-17 = a(16 - 20\sqrt{2} + 20\sqrt{2} - 25 \cdot 2)$$

$$-17 = a(16 - 50)$$

$$-17 = a(-34)$$

$$\frac{1}{2} = a$$

$$\therefore f(x) = \frac{1}{2}(x - 2 - 5\sqrt{2})(x - 2 + 5\sqrt{2})$$