

$$(i) m = \frac{(12) - (4)}{(10) - (3)} \quad \begin{matrix} (3, 4) \\ x_1, y_1 \end{matrix} \quad \begin{matrix} (10, 12) \\ x_2, y_2 \end{matrix}$$

$$m = \frac{8}{7}$$

$$d = \sqrt{((3) - (10))^2 + ((4) - (12))^2}$$

$$\sqrt{(-7)^2 + (-8)^2}$$

$$\sqrt{49 + 64} = \sqrt{113} \approx 10.6$$

$$\begin{matrix} (5, -8) \\ x_1, y_1 \end{matrix} \quad \begin{matrix} (8, -3) \\ x_2, y_2 \end{matrix}$$

$$m = \frac{(-3) - (-8)}{(8) - (5)} = \frac{-3 + 8}{3} = \frac{5}{3}$$

$$d = \sqrt{((5) - (8))^2 + ((-8) - (-3))^2}$$

$$d = \sqrt{(-3)^2 + (-5)^2}$$

$$\sqrt{9 + 25} = \sqrt{34} \approx 5.83$$

$$(ii) 0 = x^2 - x + 20$$

$$a = 1 \quad b = -1 \quad c = 20$$

$$\frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(20)}}{2(1)}$$

$$\frac{1 \pm \sqrt{1 + 80}}{2} = \frac{1 \pm \sqrt{81}}{2}$$

$$\frac{1 \pm 9}{2} \quad \frac{1 + 9}{2} = 5$$

$$\frac{1 - 9}{2} = -4$$

$$0 = x^2 - 9$$

$$a = 1 \quad b = 0 \quad c = -9$$

$$\frac{-0 \pm \sqrt{0^2 - 4(1)(-9)}}{2(1)}$$

$$\frac{\pm \sqrt{36}}{2} = \frac{\pm 6}{2}$$

$$3, -3$$