

$$1. v^2 + 2v - 8 = 0$$

$$(v+4)(v-2) = 0$$

$$\boxed{v = -4, 2}$$

$$3. 2x^2 - 5x + 3 = 0$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(2)(3)}}{2 \cdot 2} = \frac{5 \pm \sqrt{1}}{4} = \frac{5 \pm 1}{4}$$

$$x = \frac{5+1}{4}$$

$$\boxed{x = \frac{3}{2}}$$

$$x = \frac{5-1}{4}$$

$$\boxed{x = 1}$$

$$5. 2n^2 - n - 6 = 0$$

$$n = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(2)(-6)}}{2 \cdot 2} = \frac{1 \pm \sqrt{49}}{4}$$

$$n = \frac{1+7}{4} = \boxed{n=2}$$

$$n = \frac{1-7}{4} = \boxed{n = -\frac{3}{2}}$$

$$7. 8n^2 - 4n - 18 = 0$$

$$n = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(8)(-18)}}{2 \cdot 8} = \frac{4 \pm \sqrt{592}}{16}$$

$$n = \frac{4 + \sqrt{592}}{16} = \frac{4 + 4\sqrt{37}}{16} = \boxed{\frac{1 + \sqrt{37}}{4}}$$

$$n = \frac{4 - \sqrt{592}}{16} = \frac{4 - 4\sqrt{37}}{16} = \boxed{\frac{1 - \sqrt{37}}{4}}$$

$$9. 10x^2 - x + 9 = 0$$

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(10)(9)}}{2(10)}$$

by the discriminant,
there are no solutions!

$$x = \frac{1 \pm \sqrt{-359}}{20}$$

Not possible! no solution

$$11. 3a^2 - 6a + 3 = 0$$

$$\begin{aligned} a &= 3 \\ b &= -6 \\ c &= 3 \end{aligned}$$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(3)(3)}}{2 \cdot 3} = \frac{6 \pm \sqrt{0}}{6} = \frac{6}{6} = 1 \quad \boxed{a = 1}$$

$$13. 9x^2 - 6x - 11 = 0$$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(9)(-11)}}{2 \cdot 9} = \frac{6 \pm \sqrt{432}}{18}$$
$$\begin{aligned} X &= \frac{6 + \sqrt{432}}{18} & X &= \frac{6 - \sqrt{432}}{18} \\ X &= \frac{6 + 12\sqrt{3}}{18} & X &= \frac{6 - 12\sqrt{3}}{18} \\ X &= \boxed{\frac{1 + 2\sqrt{3}}{3}} & X &= \boxed{\frac{1 - 2\sqrt{3}}{3}} \end{aligned}$$

$$15. 8m^2 - 7m + 1 = 0$$

$$m = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(8)(1)}}{2 \cdot 8} = \frac{7 \pm \sqrt{17}}{16}$$
$$\begin{aligned} m &= \boxed{\frac{7 + \sqrt{17}}{16}} \\ m &= \boxed{\frac{7 - \sqrt{17}}{16}} \end{aligned}$$