

$$(1) 4x^2 + 9x = 0$$

$$x(4x+9)=0$$

$$x=0$$

$$4x+9=0$$

$$\frac{4x}{4} = \frac{-9}{4}$$

$$x = -\frac{9}{4}$$

$$2) 7x^2 = 6x$$

$$7x^2 - 6x = 0$$

$$x(7x-6)=0$$

$$x=0$$

$$7x-6=0$$

$$\frac{7x}{7} = \frac{6}{7}$$

$$x = \frac{6}{7}$$

$$3) x^2 + 5x + 4 = 0$$

$$(x+4)(x+1)$$

$$x=-4$$

$$x=-1$$

$$4) x^2 - 2x - 15 = 0$$

$$(x-5)(x+3)$$

$$x=5$$

$$x=-3$$

$$5) t^2 - 8t + 16 = 0$$

$$(t-4)(t-4)$$

$$t=4$$

$$6) x^2 - 18x = -32$$

$$x^2 - 18x + 32 = 0$$

$$x^2 - 18x + 32 = 0$$

$$7) x^2 + 2x = 24$$

$$x^2 + 2x - 24 = 0$$

$$(x+6)(x-4)$$

$$x=-6$$

$$x=4$$

$$(x-16)(x-2)$$

$$x=16$$

$$x=2$$

$$8) x^2 = 17x - 72$$

$$x^2 - 17x + 72 = 0$$

$$(x - 9) \quad (x - 8)$$

$$\boxed{x = 9} \quad \boxed{x = 8}$$

$$10) x^2 - 9 = 0$$

$$(x - 3) \quad (x + 3)$$

$$\boxed{x = 3} \quad \boxed{x = -3}$$

OR

$$x^2 - 9 = 0$$

$$\sqrt{x^2} = \sqrt{9}$$

$$\boxed{x = \pm 3}$$

$$13) s^2 + 20s + 100 = 0$$

$$(s + 10) \quad (s + 10)$$

$$\boxed{s = -10} \quad \boxed{s = -10}$$

$$9) \frac{2m^2}{2} = \frac{50}{2}$$

$$\sqrt{m^2} = \sqrt{25}$$

$$m = \pm 5$$

$$\boxed{m = 5} \quad \boxed{m = -5}$$

$$11) x^2 - 25 = 0$$

$$(x - 5) \quad (x + 5)$$

$$\boxed{x = 5} \quad \boxed{x = -5}$$

$$12) \frac{1}{3}x^2 - 8 = 0$$

$$3 \times \frac{1}{3}x^2 = 3 \times 8$$

$$\sqrt{x^2} = \sqrt{9}$$

$$\boxed{x = \pm 3}$$

$$\underline{\underline{x = 3}}$$

$$\underline{\underline{x = -3}}$$

$$14) y^2 + \frac{1}{2}y = -\frac{1}{16}$$

$$y^2 + \frac{1}{2}y + \frac{1}{16}$$

$$(y + \frac{1}{4}) (y + \frac{1}{4})$$

$$\boxed{y = -\frac{1}{4}}$$

$$\boxed{y = -\frac{1}{4}}$$

$$15) 9m^2 - 12m + 4 = 0$$

$$(3m - 2) (3m - 2)$$

$$\frac{3m}{3} = \frac{2}{3}$$

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

$$\frac{3m}{3} = \frac{2}{3}$$

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

$$16) \sqrt{(x+1)^2} = \sqrt{4}$$

$$x+1 = \pm 2$$

$$x+1=2$$

$$\Rightarrow x=1$$

$$\boxed{x=1}$$

$$x+1=-2$$

$$\Rightarrow x=-3$$

$$\boxed{x=-3}$$

$$18) 5x^2 + 2 = 6$$

$$\quad \quad \quad -2 \quad -2$$

$$\frac{5x^2}{5} = \frac{4}{5}$$

$$\sqrt{x^2} = \sqrt{\frac{4}{5}}$$

$$x = \pm \sqrt{\frac{4}{5}}$$

$$x = \sqrt{\frac{4}{5}}$$

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

$$17) \sqrt{9(x-1)^2} = \sqrt{16}$$

$$3(x-1) = \pm 4$$

$$\frac{3(x-1)}{3} = \frac{4}{3}$$

$$x-1 = \frac{4}{3} + 1$$

$$\boxed{x = \frac{7}{3}}$$

or

$$\frac{3(x-1)}{3} = \frac{-4}{3}$$

$$(x-1) = \frac{-4}{3} + 1$$

$$\boxed{x = -\frac{1}{3}}$$