

Simplify:

$$1. \quad \sqrt{18} = \sqrt{9\sqrt{2}} \\ = \boxed{3\sqrt{2}}$$

$$2. \quad \sqrt{24} = \sqrt{4\sqrt{6}} \\ = \boxed{2\sqrt{6}}$$

$$3. \quad \sqrt{75} = \sqrt{25\sqrt{3}} \\ = \boxed{5\sqrt{3}}$$

Simplify the following:

$$4. \quad 2\sqrt{3} + \sqrt{12} \\ = 2\sqrt{3} + 2\sqrt{3} \\ = \boxed{4\sqrt{3}}$$

$$5. \quad 15\sqrt{5} - \sqrt{45} \\ = 15\sqrt{5} - 3\sqrt{5} \\ = \boxed{12\sqrt{5}}$$

$$6. \quad \frac{1}{2}\sqrt{8} \times 8\sqrt{5} \\ = \frac{1}{\cancel{2}}\sqrt{2} \times 8\sqrt{5} \\ = \sqrt{2} \times 8\sqrt{5} \\ = \boxed{8\sqrt{10}}$$

$$7. \quad \frac{\sqrt{35}}{\sqrt{7}} \\ = \sqrt{\frac{35}{7}} \\ = \boxed{\sqrt{5}}$$

$$8. \quad 5\sqrt{18} - 7\sqrt{72} \\ = 5(3)\sqrt{2} - 7(6)\sqrt{2} \\ = 15\sqrt{2} - 42\sqrt{2} \\ = \boxed{-27\sqrt{2}}$$

$$9. \quad 5\sqrt{48} - 6\sqrt{27} \\ = 5\sqrt{16\sqrt{3}} - 6\sqrt{9\sqrt{3}} \\ = 5(4)\sqrt{3} - 6(3)\sqrt{3} \\ = 20\sqrt{3} - 18\sqrt{3} \\ = \boxed{2\sqrt{3}}$$

Solve:

10.  $4\sqrt{y} - 6 = 18$

$$4\sqrt{y} = 24$$

$$\sqrt{y} = 6$$

$$\boxed{y = 36}$$

Check Ans:

$$4\sqrt{36} - 6 \stackrel{?}{=} 18$$

$$4(6) - 6 \stackrel{?}{=} 18$$

$$24 - 6 \stackrel{?}{=} 18$$

$$18 \stackrel{?}{=} 18 \checkmark$$

11.  $\sqrt{3x} + 2 = 5$

$$\sqrt{3x} = 3$$

$$(\sqrt{3x})^2 = 3^2$$

$$3x = 9$$

$$\boxed{x = 3}$$

check

$$\sqrt{9} + 2 \stackrel{?}{=} 5$$

✓

12.  $\sqrt{3x+8} = \sqrt{5x}$

Sqr both sides

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

$$3x+8 = 5x$$

$$8 = 2x$$

$$\boxed{4 = x}$$

Check Ans:

$$\sqrt{12+8} = \sqrt{20}$$

✓