

E Summer Pre Trial Practice 1

1. Simplify fully:

(a) $\sqrt{48} - \sqrt{12}$.

$$2\sqrt{3}$$

(b) $(2 + \sqrt{8})^2 - 2(3 + \sqrt{2})$.

$$6 + 6\sqrt{2}$$

(c) $\frac{a}{\sqrt{a}}$.

$$\sqrt{a}$$

(d) $\sqrt{\frac{1}{4}} - \sqrt{\frac{1}{8}}$.

$$\frac{2-\sqrt{2}}{4}$$

(e) $\frac{3 + \sqrt{5}}{2 - \sqrt{5}}$.

$$-11 - 5\sqrt{5}$$

(f) $\sqrt{8} : \sqrt{50} : \sqrt{98}$.

$$2 : 5 : 7$$

2. Make x the subject:

(a) $\frac{5a}{x} = \frac{T}{7}$.

$$x = \frac{35a}{T}$$

(b) $\frac{5a}{x} = \frac{T}{7} + 1$.

$$x = \frac{35a}{T+7}$$

(c) $k = \frac{6p}{\sqrt{x}}$.

$$x = \frac{36p^2}{k^2}$$

(d) $\sqrt{\frac{x-1}{x+1}} = y$.

$$x = \frac{1+y}{1-y^2}$$

3. Solve:

(a) $2\pi x^2 + 5\pi x = 18\pi$.

$$x = 2 \text{ or } x = -\frac{9}{2}$$

(b) $\frac{3}{2x-4} = -\frac{2}{x}$.

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

(c) $\frac{x}{x+1} = \frac{x}{3}$.

$$x = 0 \text{ or } x = 2$$

(d) $\frac{4}{x+3} + \frac{2}{x+1} = 2$.

$$x = 1 \text{ or } x = -2$$

4. Simplify:

(a) $\frac{2}{x+1} - \frac{3}{2x+1}$.

$$\frac{x-1}{(x+1)(2x+1)}$$

(b) $\frac{2}{x+1} - \frac{3}{2x+2}$.

$$\frac{1}{2(x+1)}$$

(c) $\frac{2}{x} - \frac{3}{x+1} + \frac{6}{x^2+x}$.

$$\frac{8-x}{x(x+1)}$$

(d) $\frac{6\pi x^2 - 3\pi x - 3\pi}{12\pi^2 x^2 + 42\pi^2 x + 18\pi^2}$.

$$\frac{x-1}{2\pi(x+3)}$$

(e) $\frac{14x^2 + 28x - 42}{8x^2 + 12x - 20} \div \frac{7x + 21}{2x + 4}$.

$$\frac{x+2}{2x+5}$$

(f) $\frac{1 - \frac{2}{x+1}}{1 + \frac{3}{x+1}}$.

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

(g) $\frac{1 - \frac{2}{x+1}}{1 + \frac{3}{x+4}}$.

$$\frac{(x-1)(x+4)}{(x+1)(x+7)}$$