

Key

Radicals Self-Test
SOL'S covered: A.3
NO CALCULATOR!

Name _____

Simplify. Do not leave any radicals in the denominator!

7. $\sqrt{450}$

$$\begin{aligned} &= \sqrt{9} \sqrt{50} \\ &= \sqrt{9} \sqrt{25} \sqrt{2} \\ &= 15\sqrt{2} \end{aligned}$$

8. $\sqrt{10} \cdot \sqrt{20}$

$$\begin{aligned} &= \sqrt{200} \\ &= \sqrt{100} \sqrt{2} \\ &= 10\sqrt{2} \end{aligned}$$

9. $\sqrt{44x^5y^4}$

$$\begin{aligned} &= \sqrt{4x^4y^4} \sqrt{11x} \\ &= 2x^2y^2\sqrt{11x} \end{aligned}$$

10. $\frac{\sqrt{98}}{\sqrt{2}}$

$$\begin{aligned} &= \sqrt{49} \\ &= 7 \end{aligned}$$

11. $5\sqrt{10} \cdot 3\sqrt{10}$

$$\begin{aligned} &= 15\sqrt{100} \\ &= 15 \cdot 10 \\ &= 150 \end{aligned}$$

12. $\frac{\sqrt{5}}{\sqrt{55}}$

$$\begin{aligned} &= \sqrt{\frac{1}{11}} \\ &= \frac{\sqrt{1}}{\sqrt{11}} \\ &= \frac{1}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \frac{\sqrt{11}}{11} \end{aligned}$$

13. $4\sqrt{27} + 6\sqrt{48}$

$$\begin{aligned} &= 4\sqrt{9} \sqrt{3} + 6\sqrt{16} \cdot \sqrt{3} \\ &= 12\sqrt{3} + 24\sqrt{3} \\ &= 36\sqrt{3} \end{aligned}$$

14. $\frac{4\sqrt{5}}{2\sqrt{2}}$

$$\begin{aligned} &= \frac{2\sqrt{5}}{\sqrt{2}} \\ &= \frac{2\sqrt{5}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{10}}{2} \\ &= \sqrt{10} \end{aligned}$$

IA TEST PART 2 SOLVING RADICAL EQUATIONS

SOLVE. SHOW ALL WORK. CHECK FOR EXTRANEIOUS SOLUTIONS. 4 points each

1. $2\sqrt{x+1} + 3 = 13$

$$2\sqrt{x+1} = 10$$

$$\sqrt{x+1} = 5$$

$$x+1 = 25$$

$$x = 24 \checkmark$$

2. $\sqrt{6x+1} = 2x+1$

$$6x+1 = (2x+1)(2x+1)$$

$$6x+1 = 4x^2 + 4x + 1$$

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

$$0 = 2x(2x-1)$$

$$2x = 0 \quad 2x-1 = 0$$

$$x = 0 \quad x = 1/2$$

check ✓

3. $\sqrt{x+4} + 2 = -x$

$$\sqrt{x+4} = -x-2$$

$$x+4 = (-x-2)(-x-2)$$

$$= x^2 + 2x + 2x + 4$$

$$x+4 = x^2 + 4x + 4$$

$$0 = x^2 + 3x$$

$$0 = x(x+3)$$

check

~~0~~

~~x=0~~
~~x=-3~~