

## Handout 3: The Roots of All Evil

1. Solve for the missing variable:

$$x^2 + 9 = 18.$$

6. Solve for the missing variable:

$$\sqrt{x+7} = \sqrt{7-x}.$$

2. Solve for this missing variable:

$$\sqrt[4]{x^4} = 12.$$

7. Solve for the missing variable:

$$\frac{\sqrt{x}}{3\sqrt{x}} = \sqrt[6]{2x+1}.$$

3. Solve for the missing variable:

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

8. Solve for the missing variable:

$$\sqrt{(x+2)^2} = \sqrt{2+x}.$$

4. Solve for the missing variable:

$$3 - \sqrt{x} = \sqrt{x} - 5.$$

9. Solve for the missing variable:

$$\frac{3x^3}{x} = \frac{1}{9x}.$$

5. Solve for the missing variable:

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

10. Solve for the missing variable:

$$\sqrt{\frac{x^2}{2}} = \frac{4}{\sqrt{x^3}}.$$