



Math Summer Assignment for  
**Algebra II Honors**  
Wall Township High School Math Department  
*OPTIONAL but Highly Recommended*



- ★ This summer assignment is intended to prepare you for the math course above.
- ★ You will find examples and video links to help you complete the practice.

**Skill 1: Solving Multi-Step Linear Equations**



Helpful Video Link:

→ [Solving a Multi-Step Linear Equation in One Variable](#)

Practice: Solve each equation.

1) $-3x + 8 + 7x = -16$	2) $7(5 + k) = 0$	3) $4(8 + 2x) + 8 = 80$
4) $6m + 6 = 2m + 4m$	5) $11 + 8p = p + 4$	6) $-10 + 6 + 5x - 5 = x - 5$

## Skill 2: Factoring Basic Polynomials



Helpful Video Link:

→ [Factoring](#)

Practice: Factor each completely.

1) $x^2 + 6x - 7$	2) $x^2 + 9x + 14$	3) $x^2 - 3x - 40$
4) $x^2 - 4x + 3$	5) $x^2 - 16$	6) $4x^2 - 9$

### Skill 3: Simplifying Radicals



Helpful Video Link:

- [Simplifying Radical Expressions](#)
- [Adding and simplifying radicals](#)
- [Multiplying & Dividing Radical Expressions](#)

Practice: Simplify.

1) $\sqrt{96}$	2) $\frac{2}{\sqrt{3}}$	3) $3\sqrt{18} - 5\sqrt{2} - 4\sqrt{3}$
4) $(4\sqrt{6})^2$	5) $(2 - \sqrt{5})(3 + \sqrt{5})$	6) $\frac{\sqrt{8} + \sqrt{10}}{\sqrt{2}}$

## Skill 4: Solving Quadratics



Helpful Video Link:

- [How To Solve Quadratic Equations By Factoring](#)
- [Solving Quadratic Equations Using Square Roots](#)
- [Completing the Square to Solve Quadratic Equations](#)
- [How To Solve Quadratic Equations Using The Quadratic Formula](#)

Practice: Solve each quadratic by either factoring, square roots, completing the square, or the quadratic formula. Leave your answer in simplest radical form. If a solution does not exist, write does not exist.

1) $2x^2 - 18x + 36 = 0$	2) $x^2 + 4 = 97$	3) $x^2 + 12x + 36 = 0$
4) $3x^2 + 2x - 3 = 0$	5) $(x - 3)^2 = 60$	6) $x^2 - 6x + 1 = 0$
7) $2(3x - 1)^2 + 4 = 6$	8) $x^2 - x = 2$	9) $9x^2 - 81 = 0$

## Skill 5: Trigonometry



Helpful Video Link:

- [Trigonometry](#)
- [Similar triangles](#)
- [Special Similar Triangles](#)

Practice:

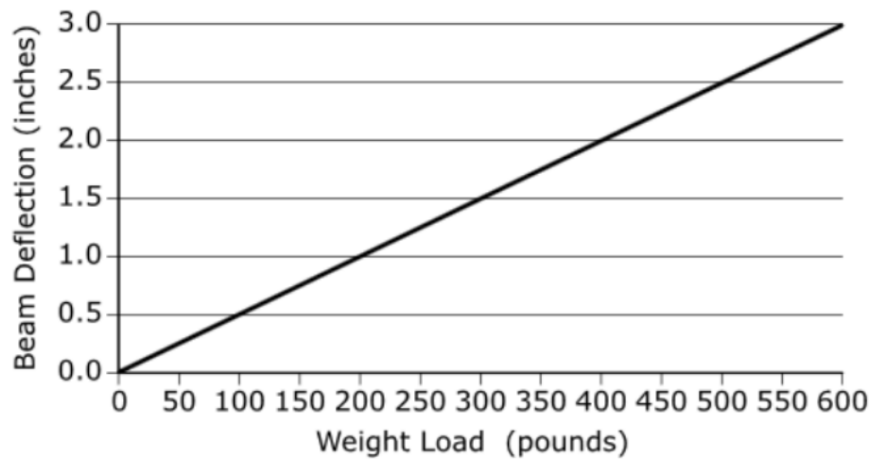
<p>1) Solve for <math>x</math>.</p>	<p>2) Find the missing side.</p>	<p>3) Find the missing angle.</p>
<p>4) Evaluate <math>\sin\theta</math></p>	<p>5) For what value of <math>x</math> is <math>ABC</math> similar to <math>DEF</math>?</p>	<p>6) Solve for the missing sides and angles.</p>

### Skill 6: Standardized Assessment Practice

- ★ The problems below are from different state tests. Please try each one.
- ★ If you have trouble, write a note or question to remind yourself where you stopped.
- ★ All problems should have work shown or a note/question.

1)	<p>While Sam was at work, his house lost electrical power. By the time the electrical power came back on, the temperature inside the house was <math>88^{\circ}</math> F. The air conditioner immediately started to cool the house. Let <math>f(x)</math> represent the temperature, in degrees Fahrenheit, of Sam's house <math>x</math> minutes after the air conditioner started to cool the house.</p> <p>What is the meaning of the statement <math>f(30) = 76</math>?</p> <p>A. After 30 minutes, the house has cooled to <math>76^{\circ}</math>F. B. After 30 minutes, the house is <math>76^{\circ}</math>F cooler than it was when the air conditioner started to cool the house. C. After 76 minutes, the house has cooled to <math>30^{\circ}</math>F. D. After 76 minutes, the house is <math>30^{\circ}</math>F cooler than it was when the air conditioner started to cool the house.</p>
2)	<p>(Refer to the scenario in #1)</p> <p>Use function notation to represent the temperature of the house when the air conditioner started to cool the house.</p> <p style="text-align: right;">Answer: _____</p>
3)	<p>Subtract <math>(4x^2 - x + 6)</math> from <math>(3x^2 + 5x - 8)</math>.</p> <p>A. <math>7x^2 + 6x - 14</math> B. <math>-x^2 + 4x + 2</math> C. <math>7x^2 + 4x - 2</math> D. <math>-x^2 + 6x - 14</math></p>
4)	<p>The circumference <math>C</math> of a circle with radius <math>r</math> can be calculated using the formula <math>C = 2\pi r</math>. Which formula represents <math>r</math> in terms of <math>C</math>?</p> <p>A. <math>r = 2\pi C</math> B. <math>r = C - 2\pi</math> C. <math>r = \frac{C\pi}{2}</math> D. <math>r = \frac{C}{2\pi}</math></p>

- 5) A 12-foot-long wooden beam is supported on both ends. When a weight load is placed in the center of the beam, causing it to sag. The sag is called *deflection*. The graph shows the deflection of the beam, in inches, as a function of the weight load, in pounds, placed in the center of the beam.



For every 50-pound increase in the weight load, what will be the change in deflection?

- A. an increase of 0.50 inch
- B. a decrease of 0.50 inch
- C. an increase of 0.25 inch
- D. a decrease of 0.25 inch