**Geometry**

This course is intended for students who will be taking Geometry during the upcoming school year, or who have already taken Geometry and are looking for review and reinforcement. **This course assumes an understanding of all Algebra I topics**. Please take the Geometry placement test before registering. A score of 70% or higher is recommended to enroll in this course.

**Course Topics:** Points, Lines, Planes and Angles, Deductive and Inductive Reasoning, Theorem and Proof, Parallel Lines and Planes, Congruent Triangles, Quadrilaterals, Inequalities, Similar Polygons, Right Triangles, Circles, Areas of Plane Figures, Volumes of Solids, Coordinate Geometry, Transformations and Symmetry

**Geometry Placement Test**

Complete the following questions without the use of a calculator.

1. Solve: <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="2x^2-3x-6=0"><mn>2</mn><msup><mi>x</mi><mn>2</mn></msup><mo>−</mo><mn>3</mn><mi>x</mi><mo>−</mo><mn>6</mn><mo>=</mo><mn>0</mn></math>.
2. Simplify <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="3x+2y-5y+10x"><mn>3</mn><mi>x</mi><mo>+</mo><mn>2</mn><mi>y</mi><mo>−</mo><mn>5</mn><mi>y</mi><mo>+</mo><mn>10</mn><mi>x</mi></math>.
3. Factor <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="3x^2+x-14"><mn>3</mn><msup><mi>x</mi><mn>2</mn></msup><mo>+</mo><mi>x</mi><mo>−</mo><mn>14</mn></math>.
4. Evaluate <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="b-2a-c"><mi>b</mi><mo>−</mo><mn>2</mn><mi>a</mi><mo>−</mo><mi>c</mi></math> for <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="a=-6,\ b=6,\ c=-5"><mi>a</mi><mo>=</mo><mo>−</mo><mn>6</mn><mo>,</mo><mtext></mtext><mi>b</mi><mo>=</mo><mn>6</mn><mo>,</mo><mtext></mtext><mi>c</mi><mo>=</mo><mo>−</mo><mn>5</mn></math>
5. Find the equation of the line through (3, –6) that is parallel to <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="y=\frac{2}{3}x+3"><mi>y</mi><mo>=</mo><mfrac><mn>2</mn><mn>3</mn></mfrac><mi>x</mi><mo>+</mo><mn>3</mn></math>
6. Solve <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\sqrt{3m-5}-4=-3"><msqrt><mn>3</mn><mi>m</mi><mo>−</mo><mn>5</mn></msqrt><mo>−</mo><mn>4</mn><mo>=</mo><mo>−</mo><mn>3</mn></math>.
7. Solve <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="2x+6=4x-6"><mn>2</mn><mi>x</mi><mo>+</mo><mn>6</mn><mo>=</mo><mn>4</mn><mi>x</mi><mo>−</mo><mn>6</mn></math>
8. Scott and Heather cut a 160-foot cord into two lengths. The ratio of the lengths was 7 to 1. How long was each length?
9. Simplify <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="(5+2\sqrt{3})(\sqrt{3}-3)"><mo stretchy="false">(</mo><mn>5</mn><mo>+</mo><mn>2</mn><msqrt><mn>3</mn></msqrt><mo stretchy="false">)</mo><mo stretchy="false">(</mo><msqrt><mn>3</mn></msqrt><mo>−</mo><mn>3</mn><mo stretchy="false">)</mo></math>.
10. Solve <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{5x}{2}-\frac{x-2}{3}=7"><mfrac><mrow><mn>5</mn><mi>x</mi></mrow><mn>2</mn></mfrac><mo>−</mo><mfrac><mrow><mi>x</mi><mo>−</mo><mn>2</mn></mrow><mn>3</mn></mfrac><mo>=</mo><mn>7</mn></math>.
11. Evaluate the expression <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\left(ab\right)^2"><msup><mrow data-mjx-texclass="INNER"><mo data-mjx-texclass="OPEN">(</mo><mi>a</mi><mi>b</mi><mo data-mjx-texclass="CLOSE">)</mo></mrow><mn>2</mn></msup></math> for a = 4 and b = 3
12. Solve for x: <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{4}{6}=\frac{x}{24}"><mfrac><mn>4</mn><mn>6</mn></mfrac><mo>=</mo><mfrac><mi>x</mi><mn>24</mn></mfrac></math>
13. Solve the equation 3(y + 6) = 30.
14. Tell whether the lines are parallel, perpendicular, or neither:

7x – 4y = 4

x – 4y = 3

1. Simplify <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\sqrt{\frac{144}{49}}"><msqrt><mfrac><mn>144</mn><mn>49</mn></mfrac></msqrt></math>
2. Rationalize the denominator <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{4}{\sqrt{21}}"><mfrac><mn>4</mn><msqrt><mn>21</mn></msqrt></mfrac></math>
3. Simplify the product <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\left(3x-7\right)\left(3x-5\right)"><mrow data-mjx-texclass="INNER"><mo data-mjx-texclass="OPEN">(</mo><mn>3</mn><mi>x</mi><mo>−</mo><mn>7</mn><mo data-mjx-texclass="CLOSE">)</mo></mrow><mrow data-mjx-texclass="INNER"><mo data-mjx-texclass="OPEN">(</mo><mn>3</mn><mi>x</mi><mo>−</mo><mn>5</mn><mo data-mjx-texclass="CLOSE">)</mo></mrow></math>.
4. Find the difference <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="(-7x-5x^4+5)-(-7x^4-5-9x)"><mo stretchy="false">(</mo><mo>−</mo><mn>7</mn><mi>x</mi><mo>−</mo><mn>5</mn><msup><mi>x</mi><mn>4</mn></msup><mo>+</mo><mn>5</mn><mo stretchy="false">)</mo><mo>−</mo><mo stretchy="false">(</mo><mo>−</mo><mn>7</mn><msup><mi>x</mi><mn>4</mn></msup><mo>−</mo><mn>5</mn><mo>−</mo><mn>9</mn><mi>x</mi><mo stretchy="false">)</mo></math>
5. Write an equation in point-slope form for the line through the point (10,-9) with the given slope -2.
6. Find the slope of the line that passes through the pair of points (1, 7)

and (10, 1).

Answer Key

1. <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{3}{4}\pm\frac{\sqrt{85}}{2}"><mfrac><mn>3</mn><mn>4</mn></mfrac><mo>±</mo><mfrac><msqrt><mn>85</mn></msqrt><mn>2</mn></mfrac></math> 2.) 13x-13y 3.) (3x+7)(x-2) 4.) 23 5.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="y=\frac{2}{3}x-8"><mi>y</mi><mo>=</mo><mfrac><mn>2</mn><mn>3</mn></mfrac><mi>x</mi><mo>−</mo><mn>8</mn></math>6.) 2 7.) x=6 8.) 140 ft, 20 ft 9.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="-9-\sqrt{3}"><mo>−</mo><mn>9</mn><mo>−</mo><msqrt><mn>3</mn></msqrt></math> 10.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{38}{13}"><mfrac><mn>38</mn><mn>13</mn></mfrac></math> 11.) 144 12.) x=1613.) 4 14.) neither 15.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{12}{7}"><mfrac><mn>12</mn><mn>7</mn></mfrac></math> 16.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="\frac{4\sqrt{21}}{21}"><mfrac><mrow><mn>4</mn><msqrt><mn>21</mn></msqrt></mrow><mn>21</mn></mfrac></math> 17.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="9x^2-26x+35"><mn>9</mn><msup><mi>x</mi><mn>2</mn></msup><mo>−</mo><mn>26</mn><mi>x</mi><mo>+</mo><mn>35</mn></math> 18.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="2x^4+2x+10"><mn>2</mn><msup><mi>x</mi><mn>4</mn></msup><mo>+</mo><mn>2</mn><mi>x</mi><mo>+</mo><mn>10</mn></math> 19.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="y+9=-2(x-10)"><mi>y</mi><mo>+</mo><mn>9</mn><mo>=</mo><mo>−</mo><mn>2</mn><mo stretchy="false">(</mo><mi>x</mi><mo>−</mo><mn>10</mn><mo stretchy="false">)</mo></math> 20.) <math xmlns="http://www.w3.org/1998/Math/MathML" display="block" data-is-equatio="1" data-latex="-\frac{2}{3}"><mo>−</mo><mfrac><mn>2</mn><mn>3</mn></mfrac></math>

Scoring Guidelines

70% or higher (14 or more correct): Geometry recommended

Under 70% (0-13 correct): Algebra I recommended