

Name:

<p>5-a-day ACT prep #13</p> <p>Solve each problem, show your work, and then choose the correct answer.</p> <p>Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.</p> <p>You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.</p> <p>Note: Unless otherwise stated, all of the following should be assumed.</p> <ol style="list-style-type: none"> <li>1. Illustrative figures are NOT necessarily drawn to scale.</li> <li>2. Geometric figures lie in a plane.</li> <li>3. The word <i>line</i> indicates a straight line.</li> <li>4. The word <i>average</i> indicates arithmetic mean.</li> </ol>	<p>1. Which of the following expressions is equivalent to <math>\frac{(2x^3z^2)^3}{x^3y^4z^2 \cdot x^{-4}z^3}</math>?</p> <p>A. <math>\frac{2x^7}{y^4}</math></p> <p>B. <math>\frac{6x^{10}z}{y^4}</math></p> <p>C. <math>\frac{6x^7}{y^4}</math></p> <p>D. <math>\frac{8x^{10}z}{y^4}</math></p> <p>E. None of these</p>
<p>2. The lines represented by the equations <math>-2x + 3y = 8</math> and <math>x - 5y = -4</math> intersect at the point <math>M</math>. What is the sum of the <math>x</math> and <math>y</math> coordinate of point <math>M</math>?</p> <p>A. <math>-4</math></p> <p>B. <math>-2</math></p> <p>C. <math>0</math></p> <p>D. <math>2</math></p> <p>E. None of these</p>	<p>3. What is the sum of the solutions to the equation <math>x^2 = -5x</math>?</p> <p>A. <math>-5i</math></p> <p>B. <math>-5</math></p> <p>C. <math>0</math></p> <p>D. <math>5i</math></p> <p>E. None of these</p>
<p>4. If <math>(x + a)</math> and <math>(x + b)</math> are factors of <math>x^2 + kx + m</math>, and <math>a</math>, <math>b</math>, <math>k</math>, and <math>m</math> are integers such that <math>a &lt; 0</math>, <math>b &lt; 0</math>, and <math>m &gt; 0</math>, what must be true about <math>k</math>.</p> <p>A. <math>k &lt; 0</math></p> <p>B. <math>k = 0</math></p> <p>C. <math>k &gt; 0</math></p> <p>D. <math>k &gt; m</math></p> <p>E. None of these</p>	<p>5. Which of the following expressions is equivalent to <math>\frac{y-5}{y^3} \div \frac{1}{y^2}</math>?</p> <p>A. <math>\frac{y-5}{y}</math></p> <p>B. <math>\frac{y-5}{y^5}</math></p> <p>C. <math>\frac{y^3-5y^2}{y^5}</math></p> <p>D. <math>-5</math></p> <p>E. None of these</p>