

<p>Which equation represents a circle whose center is <math>(-3, -5)</math> and whose diameter is 10?</p> <p>1. (1) <math>(x + 3)^2 + (y + 5)^2 = 100</math>  (2) <math>(x - 3)^2 + (y - 5)^2 = 100</math>  (3) <math>(x - 3)^2 + (y - 5)^2 = 25</math>  (4) <math>(x + 3)^2 + (y + 5)^2 = 25</math></p>	<p>6. The center of a circular sunflower with a diameter of 4 centimeters is <math>(-2, 1)</math>. Which equation represents the sunflower?</p> <p>(1) <math>(x - 2)^2 + (y + 1)^2 = 2</math>    (3) <math>(x - 2)^2 + (y - 1)^2 = 4</math>  (2) <math>(x + 2)^2 + (y - 1)^2 = 4</math>    (4) <math>(x + 2)^2 + (y - 1)^2 = 2</math></p>
<p>2. A function is defined by the equation <math>y = \frac{1}{2}x - \frac{3}{2}</math>. Which equation defines the inverse of this function?</p> <p>(1) <math>y = 2x + 3</math>  (2) <math>y = 2x - 3</math>  (3) <math>y = 2x + \frac{3}{2}</math>  (4) <math>y = 2x - \frac{3}{2}</math></p>	<p>7. The height of an object, <math>h(t)</math>, is determined by the formula <math>h(t) = -16t^2 + 256t</math>, where <math>t</math> is time, in seconds. Will the object reach a maximum or a minimum? Explain or show your reasoning.</p>
<p>3. The statement <math>f(-1) = 5</math> implies which of the following to be true?</p> <p>(1) 5 is in the domain and <math>-1</math> is in the range.  (2) The coordinate <math>(-1, 5)</math> would appear on the graph of this function.  (3) The coordinate <math>(5, -1)</math> would appear on the graph of this function.  (4) Both <math>-1</math> and 5 are elements in the range of this function.</p>	<p>8. Find the center and the length of the radius of the circle <math>(x + 2)^2 + (y + \frac{1}{2})^2 = 16</math></p>
<p>4. Solve for <math>x</math>: <math>\frac{4x}{x+2} - \frac{12}{x} = 1</math></p>	<p>9. If <math>f(x) = \frac{4x^4 + 4x^2 + 1}{2x + 1}</math> and <math>g(x) = 3</math>, find the value of <math>(g \circ f)(10)</math>.</p>
<p>5. The reciprocal of the expression <math>\frac{2}{x} + \frac{3}{1}</math> is</p> <p>(1) <math>\frac{2 + 3x}{x}</math>                      (3) <math>2x + 3</math>  (2) <math>\frac{x}{2 + 3x}</math>                      (4) <math>2 + 3x</math></p>	<p>10. The set <math>\{0, 1, -1\}</math> is closed under the operation of</p> <p>(1) addition                      (3) subtraction  (2) multiplication              (4) division</p>

11. The price of a stock,  $A(x)$ , over a 12-month period decreased and then increased according to the equation  $A(x) = 0.75x^2 - 6x + 20$ , where  $x$  equals the number of months. The price of another stock,  $B(x)$ , increased according to the equation  $B(x) = 2.75x + 1.50$  over the same 12-month period. Graph and label both equations on the accompanying grid. State all prices, to the *nearest dollar*, when both stock values were the same.

