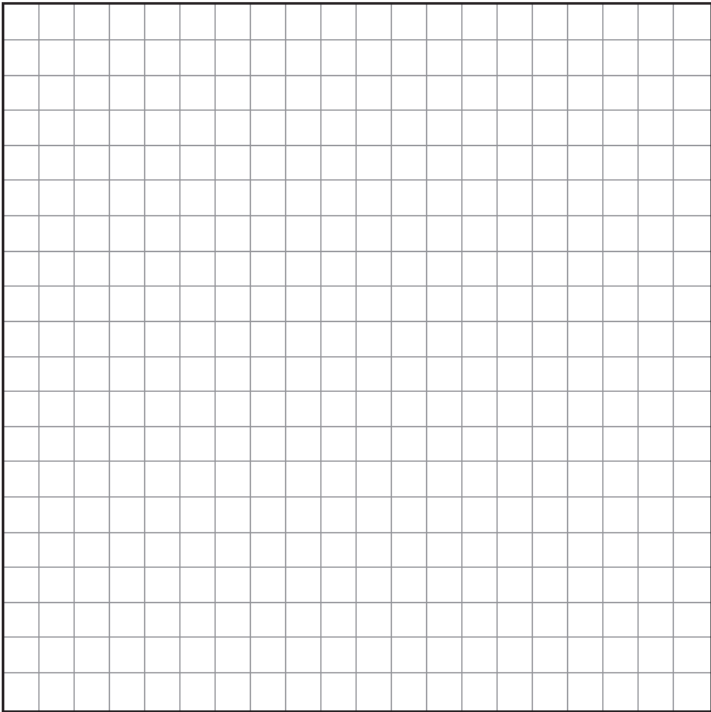


<p>1. Which equation, when graphed, is an ellipse? (1) $2x^2 + 4 = 2y^2$ (3) $4x^2 + 4y^2 = 25$ (2) $xy = 6$ (4) $7x^2 + 3y^2 = 9$</p>	<p>4. What is the domain of $f(x) = \frac{1}{\sqrt{(4-x^2)}}$? (1) $x < 2$ (3) $-2 < x < 2$ (2) $x \leq 2$ (4) all real numbers</p>
<p>2. Which equation defines a relation that is <i>not</i> a function? (1) $y = 2x + 3$ (3) $x^2 + y^2 = 25$ (2) $y = x^2$ (4) $y = 3$</p>	<p>5. The graph of $\frac{x}{2} = \frac{3}{y}$ is (1) a circle (3) a hyperbola (2) an ellipse (4) a line</p>
<p>3. Write the equation of an ellipse whose center is $(3, -2)$ and is tangent to the y-axis.</p>	<p>6. The price per person to rent a limousine for a prom varies inversely as the number of passengers. If five people rent the limousine, the cost is \$70 each. How many people are renting the limousine when the cost <i>per couple</i> is \$87.50?</p>
<p>7. American astronauts working on a space station on the moon toss a ball into the air. The height of the ball is represented by the equation $y = -2.7x^2 + 13.5x + 14$, where x represents the number of seconds since the ball was thrown and y represents the height of the ball in feet.</p> <p>(a) Graph and label the equation. (b) To the nearest hundredth of a second, after how much time does the ball hit the ground? (c) To the nearest tenth of a foot, what is the greatest height the ball reaches?</p>	

<p>8. If $f(x) = 2x^3 + \frac{1}{2}$, what is the value of $f^{-1}\left(f\left(\frac{1}{2}\right)\right)$?</p> <p>(1) $\frac{3}{4}$ (3) $\frac{1}{2}$ (2) 2 (4) $\frac{4}{3}$</p>	<p>11. State the axis of the symmetry and the coordinates of the vertex for the equation $5x^2 - 20y = 100$.</p>
<p>9. If a varies inversely with b and a is multiplied by $\frac{3}{2}$, then b is</p> <p>(1) doubled (3) halved (2) multiplied by $\frac{2}{3}$ (4) tripled</p>	<p>12. Solve for x $x(5x - 4) = -13$</p>
<p>10. Which statement describes the graphs of the equations $x = -1$ and $3x^2 = 10y^2 + 4$?</p> <p>(1) They do not intersect. (2) They intersect in the second quadrant, only. (3) They intersect in the third quadrant, only. (4) They intersect in the second and in the third quadrants.</p>	<p>13. If $f(x) = -2x^2$ and $g(x) = 5x^3 - x^2$, find $g(-1)$ and find $(g \circ f)(x)$.</p>
<p>14. Two model rockets are launched, one 10 seconds after the first. The height, h, in feet, of the first rocket t seconds after it is launched is $h(t) = -16t^2 + 256t$. The height, h, in feet, of the second rocket t seconds after it is launched is $h(t) = -16t^2 + 480t - 3200$.</p> <p>a) What is the height of the second rocket when the first rocket hits the ground?</p> <p>b) What is the height of the first rocket when the second rocket hits the ground?</p> <p>c) How many seconds, correct to the <i>nearest hundredth</i>, after the second rocket is launched will the two rockets have the same height?</p>	