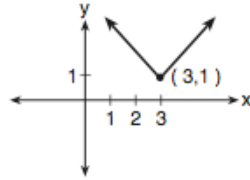


1. Which equation is represented by the accompanying graph?



- (1) $y = |x| - 3$
- (2) $y = (x - 3)^2 + 1$
- (3) $y = |x + 3| - 1$
- (4) $y = |x - 3| + 1$

3. Solve for x :

$$4x - 5 = \frac{6}{x}?$$

2. The inverse relation of the function defined by $\{(1, 2), (2, 3), (3, 4)\}$ is

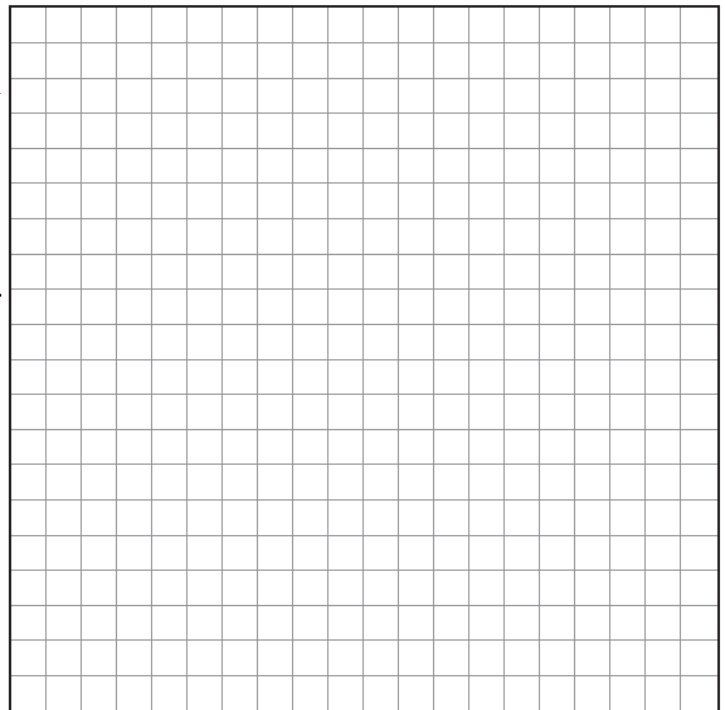
- (1) $\{(-1, -2), (-2, -3), (-3, -4)\}$
- (2) $\{(2, 1), (3, 2), (4, 3)\}$
- (3) $\{(1, \frac{1}{2}), (\frac{1}{2}, \frac{1}{3}), (\frac{1}{3}, \frac{1}{4})\}$
- (4) $\{(3, 4), (2, 3), (1, 2)\}$

4. Rationalize the denominator:

$$\frac{\sqrt{5} + \sqrt{2}}{\sqrt{2} - \sqrt{5}}$$

5. Joanna earns money as a part-time receptionist according to the function $j(x) = 8x - 2.35$ where x is the number of hours she works. Her father suggests that Joanna invest her earnings in a company whose quarterly payout is represented by the function $p(x) = 4x + 28$. What single function would represent the quarterly value of the investment of all of Joanna's earnings in the company her father recommends?

6. A pelican flying in the air over water drops a crab from a height of 30 feet. The distance the crab is from the water as it falls can be represented by the function $h(t) = -16t^2 + 30$, where t is time, in seconds. To catch the crab as it falls, a gull flies along a path represented by the function $g(t) = -8t + 15$. Can the gull catch the crab before the crab hits the water? Justify your answer.



<p>7. Given $f(x) = 2x^2 - 4x + 5$, we know its roots are</p> <p>(1) imaginary (2) real, rational, and equal (3) real, rational, and unequal (4) real, irrational, and unequal</p>	<p>9. Which element is <i>not</i> in the range of the function $f(x) = -x^2 + 10$?</p> <p>(1) 1 (3) 10 (2) 5 (4) 15</p>
<p>8. Simplify: $2\sqrt{54} - \frac{3}{2}\sqrt{24} + \sqrt{96}$</p>	<p>10. Is the ellipse a function? Explain your answer.</p>
<p>11. Given $f(x) = 2x + 3$ and $g(x) = x^2 - 2x - 5$, find</p> <p>(a) $(f \circ g)(5)$ (b) $(f \circ g)(x)$ (c) $(f \circ f^{-1})(x)$</p>	
<p>12. Sketch the graphs of the equations:</p> <p>$4x^2 + 49(y - 6)^2 = 196$ $4x^2 + 4y^2 = 16$</p> <p>Label the point(s) of intersection.</p>	