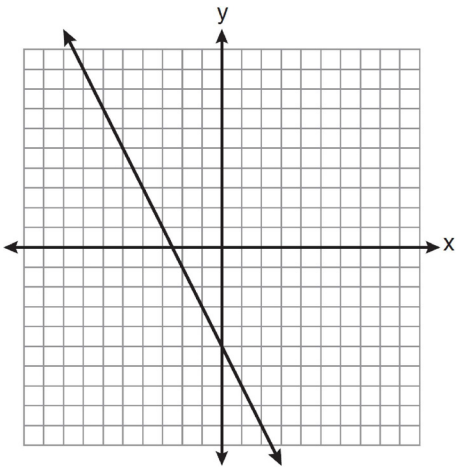
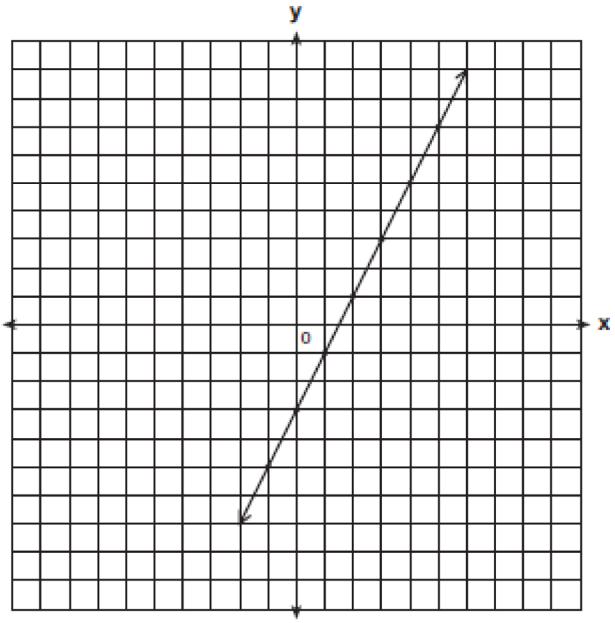
A.G.4: Identifying the Equation of a Graph: Identify and graph linear, quadratic (parabolic), absolute value, and exponential functions

1 Which equation is represented by the graph below?

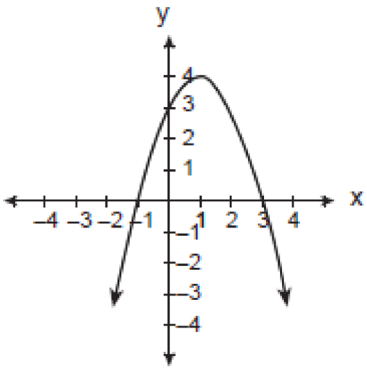


1) $2y + x = 10$
2) $y - 2x = -5$
3) $-2y = 10x - 4$
4) $2y = -4x - 10$

2 Write the equation for the line shown in the accompanying graph. Explain your answer.

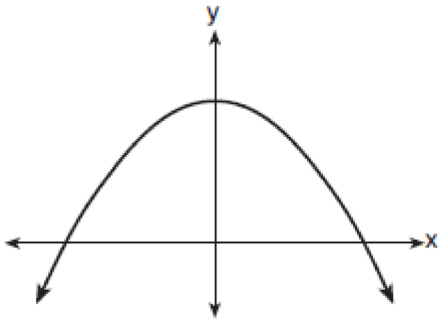


3 Which is an equation of the parabola shown in the accompanying diagram?



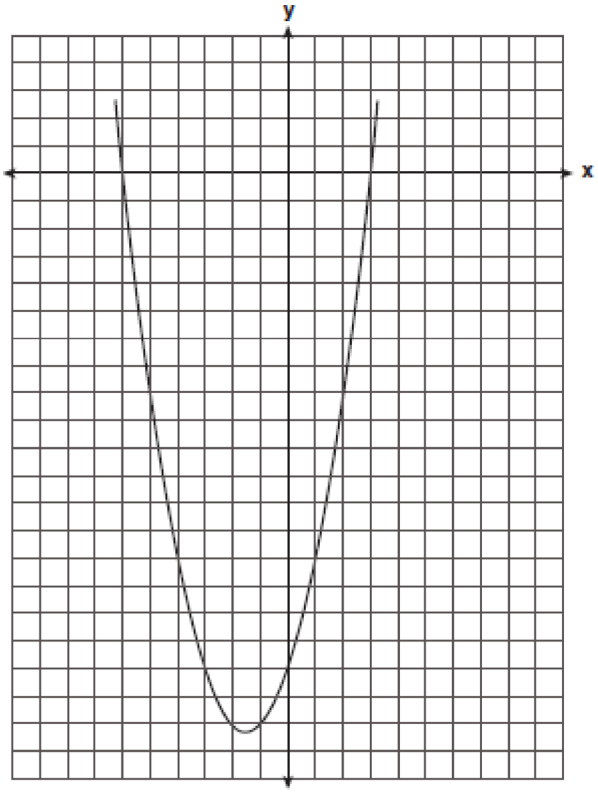
1) $y = -x^2 + 2x + 3$
2) $y = -x^2 - 2x + 3$
3) $y = x^2 + 2x + 3$
4) $y = x^2 - 2x + 3$

4 Which equation is best represented by the accompanying graph?

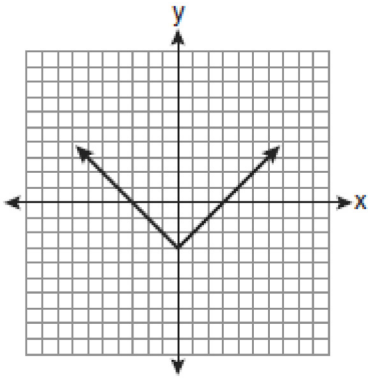


1) $y = 6^x$
2) $y = 6x^2$
3) $y = 6x + 1$
4) $y = -x^2 + 1$

5 The graph of a quadratic equation is shown in the accompanying diagram. The scale on the axes is a unit scale. Write an equation of this graph in standard form.

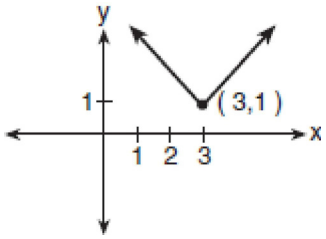


6 Which equation is represented by the graph below?



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

7 Which equation is represented by the accompanying graph?



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

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Answer Section

1 ANS: 4 REF: 061221ia

2 ANS:
$y = 2x - 3$. The y-intercept is -3, and the line has a slope of 2. The equation for the line is $y = 2x - 3$.

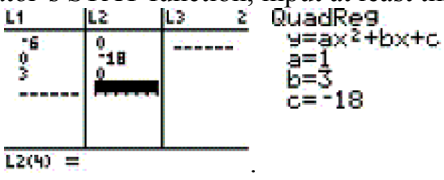
REF: 060225a

3 ANS: 1
Since the parabola is cupped down, $a < 0$, eliminating (3) and (4). Based upon the graph, the axis of symmetry is $x = 1$. $x = \frac{-b}{2a}$. $x = \frac{-(2)}{2(-1)}$. $x = 1$

REF: 080017a

4 ANS: 4 REF: 060703b

5 ANS:
$y = x^2 + 3x - 18$. $a > 0$, the y-intercept is –18, and the roots are –6 and 3. $y = (x + 6)(x - 3)$. $y = x^2 + 6x - 3x - 18$. You can also use a graphing calculator's STAT function, input at least three ordered pairs, and calculate the quadratic regression line of best fit. $y = x^2 + 3x - 18$.



REF: 010328a

6 ANS: 3 REF: 080925ia

7 ANS: 4 REF: 060314b