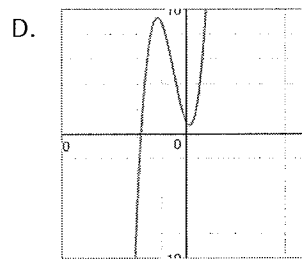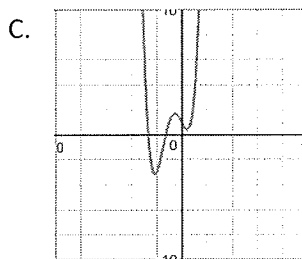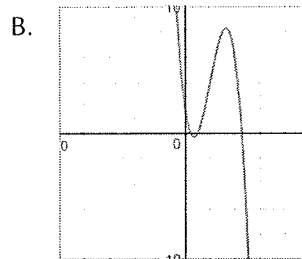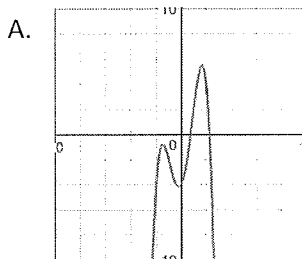MORE PRACTICE: Graphing Polynomials

Match the graph with the equation.

C 1. $y = x^4 + 3x^3 - 2x + 1$

D 2. $y = x^3 + 3x^2 - 2x + 1$

A 3. $y = -x^4 + 5x^2 + 2x - 4$

B 4. $y = -x^3 + 6x^2 - 7x + 2$

A.

B.

C.

D.

Label the following polynomials as even (E), odd (O), or neither (N).

E   O
5. $x^2 + 3x$

E   E
6. $x^2 + 3$

O   O
7. $x^3 + 3x$

O   E
8. $x^3 + 3$

Neither   Even   ODD   NEITHER

Find the x-intercept and y-intercept of the following:

9. $y = 5x + 1$

$Y = 5(0) + 1 = \boxed{1 = Y}$

$0 = 5x + 1 \quad -1 = 5x$
$-1 \qquad -1 \quad \boxed{-\frac{1}{5} = x}$

10. $y = 8 - 3x$

$Y = 8 - 3(0) \boxed{8 = Y}$
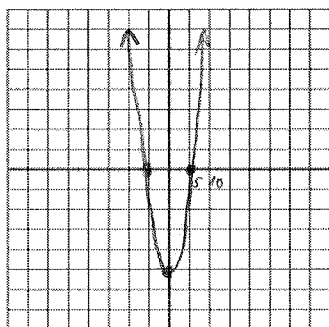
$0 = 8 - 3x$
$3x = 8$
$\boxed{x = 8/3}$

11. $y = x^2 - 4$

$Y = 0^2 - 4 = \boxed{-4 = Y}$

$0 = x^2 - 4$
$x^2 = 4 \quad \boxed{x = 2, -2}$

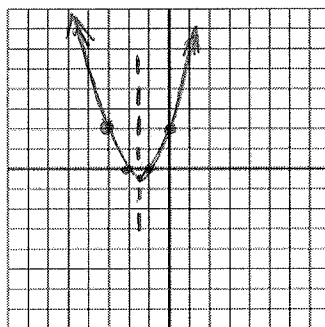For the following quadratic polynomials, find:
a) the y-intercept, b) the x-intercept(s) or zeros, c) the maximum or minimum, d) whether the graph opens up or down, then e) graph the function.
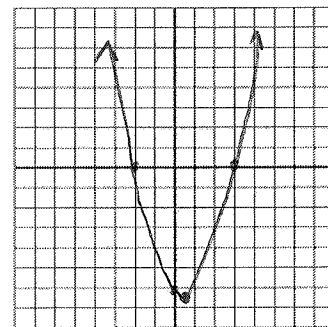
12. $y = x^2 - 25$

a) $y = -25$
b) $x = 5, -5$
c) $(0, -25)$
d) up

$0 = x^2 - 25 \quad x^2 = 25, \ x = 5, -5$

$x = \frac{-b}{2a} = \frac{-0}{2(1)} = 0$

$Y = (0)^2 - 25 = -25$

13. $y = x^2 + 3x + 2$

a) $Y = 2$
b) $x = -2, -1$
c) $(-1\frac{1}{2}, -\frac{1}{4})$
d) up

$x^2 + 3x + 2 = 0$
$(x + 2)(x + 1) = 0 \quad X = -2, -1$

$x = \frac{-b}{2a} = \frac{-3}{2(1)} = -\frac{3}{2}$

$Y = \left(-\frac{3}{2}\right)^2 + 3\left(-\frac{3}{2}\right) + 2 = -\frac{1}{4}$

14. $y = x^2 - x - 6$

a) $y = -6$
b) $x = 3, -2$
c) $(\frac{1}{2}, -6\frac{1}{4})$
d) up

$x^2 - x - 6 = 0$
$(x - 3)(x + 2) = 0 \quad X = 3, -2$

$x = \frac{-b}{2a} = \frac{1}{2(1)} = \frac{1}{2}$

$Y = \left(\frac{1}{2}\right)^2 - \frac{1}{2} - 6 = -6\frac{1}{4}$