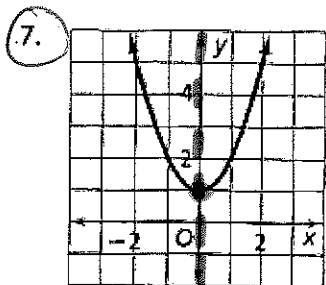


Quadratics Review

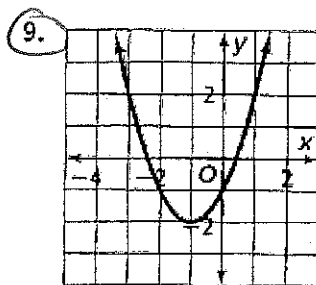
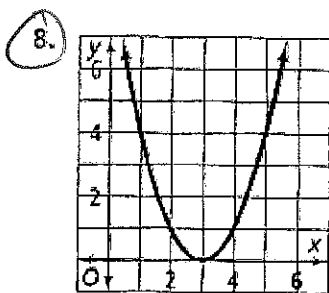
Name: Hirsch - 3rd

Identify the vertex and the axis of symmetry of each parabola.



vertex (0, 1)

AOS  $x = 0$



Factor each quadratic equation. Identify x- and y-intercepts. *pick 2 more*

1.  $y = x^2 + 5x - 14$  y-int (0, -14)

$(x+7)(x-2)$

$a \cdot c = -14$   
 $\uparrow \rightarrow$   
 $x$   $-2$   
 $x$   $+7$   
 $x$   $-2 = 0$   
 $x = -7$   $x = 2$

$(-7, 0)$  and  $(2, 0)$

2.  $y = x^2 - 16x + 64$

3.  $y = 2x^2 - 5x - 3$

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

5.  $y = x^2 - 3x - 18$

6.  $y = x^2 - 13x + 12$

7.  $y = 4x^2 + 13x + 3$  y-int (0, 3)

$\frac{4x^2}{x} + \frac{1x}{3} + \frac{12x}{3} + \frac{3}{3}$   
 $x(4x+1) + 3(4x+1) = (4x+1)(x+3)$

x-int  $(-3, 0)$  and  $(-\frac{1}{4}, 0)$   
 $4x+1=0$   $x+3=0$   
 $4x=-1$   $x=-3$   
 $x=-\frac{1}{4}$

8.  $y = x^2 - 8x + 15$

9.  $y = 2x^2 - 13x + 6$

10.  $x^2 - 81$

PICK  
2 MORE

Find the vertex of the following (algebraically):

$$x = \frac{\text{opp } b}{2a}$$

y = substitute x  
back in.

9.  $y = x^2 + 4x - 6$

10.  $y = x^2 - 6x + 6$

11.  $y = 4x^2 + 8x - 4$

12.  $y = 4x^2 + 4x + 1$

$$x = \frac{-4}{2(4)} = \frac{-4}{8} = (-.5)$$

$$y = 4(-.5)^2 + 4(-.5) + 1 = 0$$

vertex  $(-.5, 0)$

13.  $y = 2x^2 + 4x - 5$

14.  $y = -3x^2 - 4x - 1$

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

16.  $y = x^2 + 2x + 1$

17.  $y = -5x^2 + 10x + 1$

PICK  
2 MORE

Evaluate the discriminant of each equation. Tell how many solutions each equation has and whether the solutions are real or imaginary.

$$b^2 - 4ac$$

1.  $y = x^2 + 10x - 25$

2.  $y = x^2 + 10x + 10$

3.  $y = 9x^2 - 24x$

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

5.  $y = 4x^2 - 5x + 1$

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

$$a=4 \quad b=-4 \quad c=1$$

$$(-4)^2 - 4(4)(1)$$

$$0$$

1 real root

Solve each equation using the Quadratic Formula.

*pick 2 more*

16.  $x^2 + 6x + 9 = 0$

17.  $x^2 - 15x + 56 = 0$

18.  $3x^2 - 5x + 2 = 0$

19.  $2x^2 + 3x + 5 = 0$

20.  $10x^2 - 23x + 12 = 0$

21.  $4x^2 + x - 5 = 0$

$a = 4$   $b = 1$   $c = -5$

$$x = \frac{-1 \pm \sqrt{(1)^2 - 4(4)(-5)}}{2(4)}$$

$$x = \frac{-1 \pm \sqrt{81}}{8}$$

$$\begin{array}{l} \swarrow \quad \searrow \\ \frac{-1 + \sqrt{81}}{8} \quad \frac{-1 - \sqrt{81}}{8} \\ = \textcircled{1} \quad = \textcircled{-1.25} \end{array}$$

22.  $x^2 + 8x + 15 = 0$

23.  $3x^2 + 2x + 1 = 0$

24.  $4x^2 + x + 5 = 0$

