

## Precalculus: Prerequisites Review

Write in interval notation.

1.  $x > -2$

$(-2, \infty)$

2.  $-3 < x \leq 9$

$(-3, 9]$

3. all real numbers

$(-\infty, \infty)$

Simplify the expressions.

4.  $\frac{(uv^2)^3}{v^2u^3} = \frac{\cancel{u^3}v^6}{v^2\cancel{u^3}} = v^4$

5.  $(3x^2y^3)^{-2} = \frac{1}{9x^4y^6}$

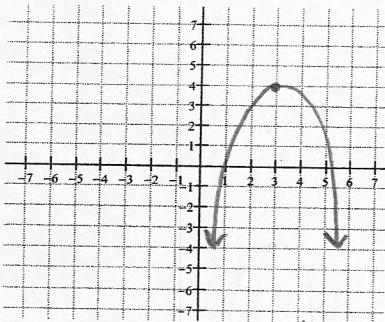
6.  $(5x^3y)^2(3xy^6)$

$(25x^6y^2)(3xy^6) = 75x^7y^8$

7.  $\left(\frac{12a^4b}{20a^{-2}b^3}\right)^3 = \left(\frac{3a^6}{5b^2}\right)^3 = \frac{27a^{18}}{125b^6}$

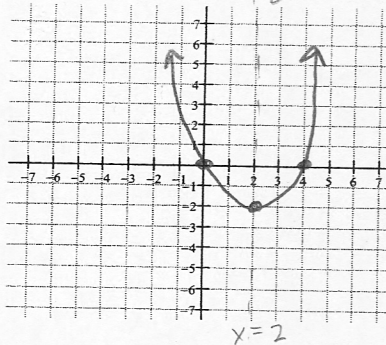
Graph each quadratic.

8.  $y = -(x-3)^2 + 4$



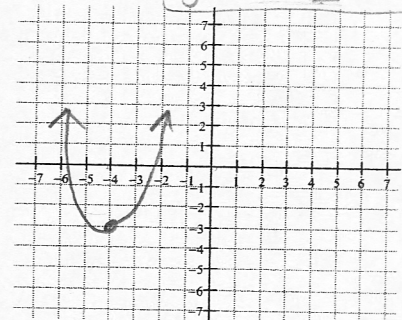
9.  $y = \frac{1}{2}x(x-4)$

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



10.  $y = x^2 + 8x + 13$

$y = (x^2 + 8x + 16) + 13 - 16$   
 $y = (x+4)^2 - 3$



Factor each polynomial.

11.  $28x^2 + 12x$

$4x(7x+3)$

12.  $3m^2 + 20m + 32$

$(3m+8)(m+4)$

$+12m$

$+8m$

$20m$

13.  $x^3 + 6x^2 + 3x + 18$

$x^2(x+6) + 3(x+6)$

$(x^2+3)(x+6)$

14.  $25x^2 - 9$

$(5x+3)(5x-3)$