

Summer Packet

Date _____ Period _____

Factor each completely.

1) $6v^2 + 18v - 324$

2) $k^2 + 16k + 64$

3) $x^2 - 25$

4) $4x^2 - 12x$

5) $7b^2 + 45b + 50$

6) $6n^2 - 20n + 80$

Solve each equation.

7) $a^2 + 16a - 205 = -11$

8) $x^2 + 24x + 121 = 13$

$$9) \ n^2 - 26n - 65 = -9$$

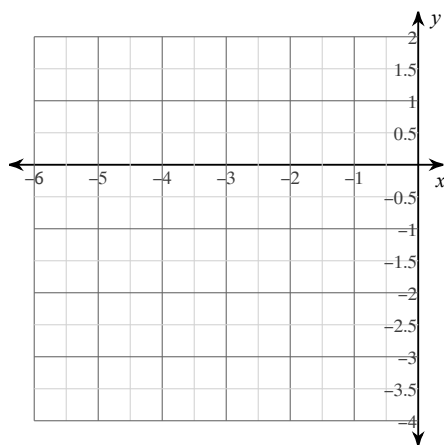
$$10) \ b^2 + 28b - 139 = -14$$

$$11) \ 7x^2 - 14x - 15 = 6$$

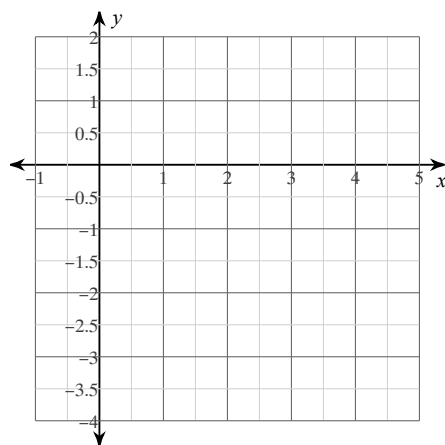
$$12) \ 2x^2 + 4x - 27 = 2$$

Sketch the graph of each function. Label the x-intercepts, y-intercept, max/min, axis of symmetry, and state the domain and range.

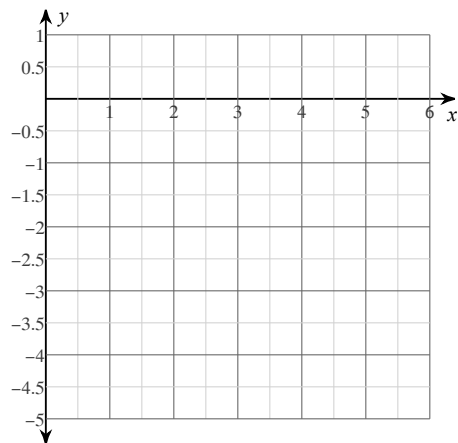
$$13) \ f(x) = (x + 3)^2 - 3$$



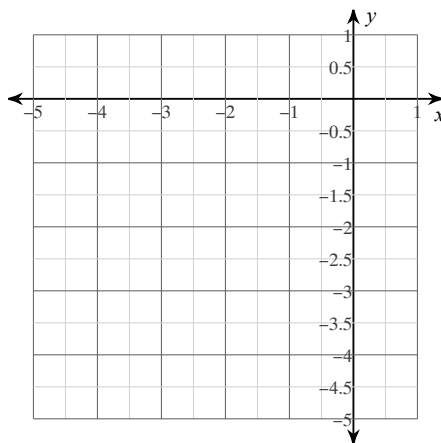
$$14) \ f(x) = (x - 3)^2 - 3$$



15) $f(x) = x^2 - 4x$



16) $f(x) = x^2 + 4x$



Simplify. Your answer should contain only positive exponents.

17) $\left(\frac{-x^4 y^{-2} \cdot x^4 y^{-4}}{-yx^{-1}} \right)^4$

18) $\frac{(-n^5)^6}{m^5 n^3 \cdot -m^{-1} n^2}$

19) $\frac{(x^3)^{-4}}{(-x^{-4} y^{-5} \cdot -y^0)^{-4}}$

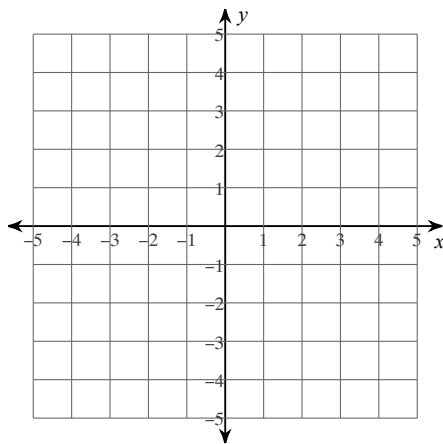
20) $-\frac{u^{-6} v^4 \cdot u^{-5} v^5}{(-u^2 v^{-3})^3}$

$$21) \frac{((-2)^4)^3}{((-2)^3 \cdot (-2)^4)^3}$$

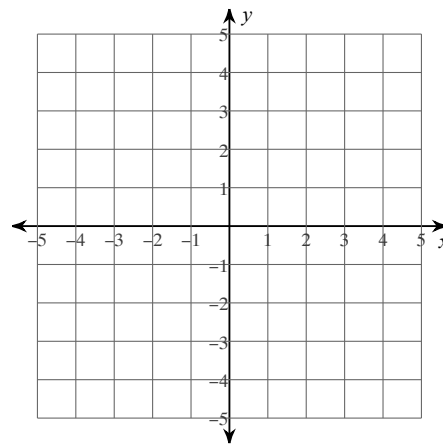
$$22) \frac{(2^0)^{-3} \cdot 2^{-3}}{2}$$

Solve each system using the best way possible. You do not need to use the graph.

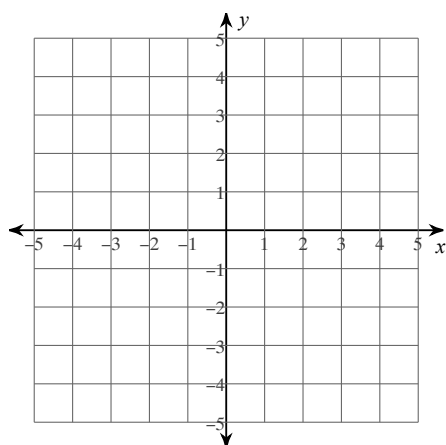
$$23) \begin{aligned} x - 4y &= 8 \\ 3x + 4y &= 8 \end{aligned}$$



$$24) \begin{aligned} y &= -x - 4 \\ y &= -x + 2 \end{aligned}$$

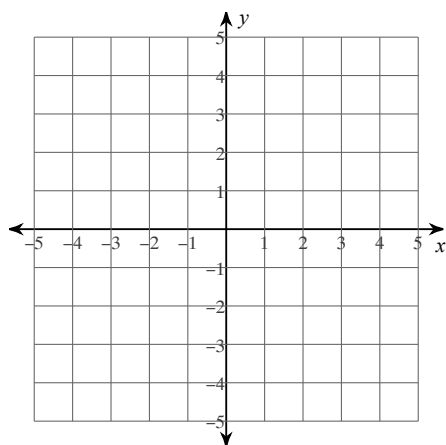


25) $0 = -3 + y + x$
 $-3y = -12x + 6$



Sketch the solution to each system of inequalities.

26) $x + 3y \leq 6$
 $2x + y > -3$



27) $x - y \geq -3$
 $x - y \leq 1$

