CHAPTER 10 WARM UPS

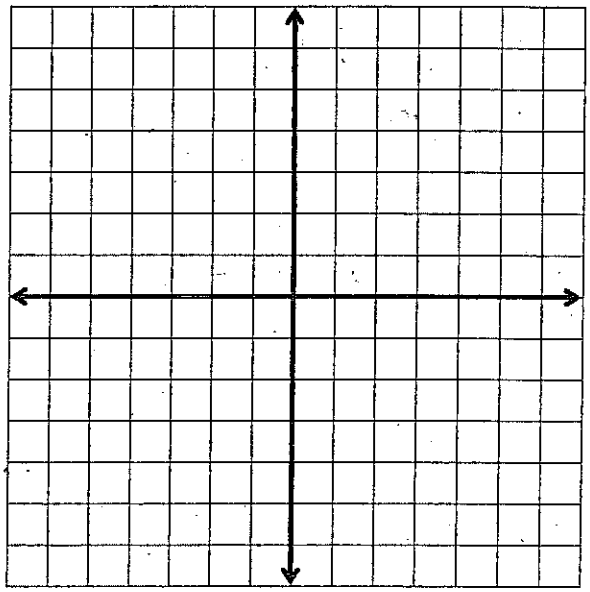
Check Skills You'll Need — Lesson 10-1

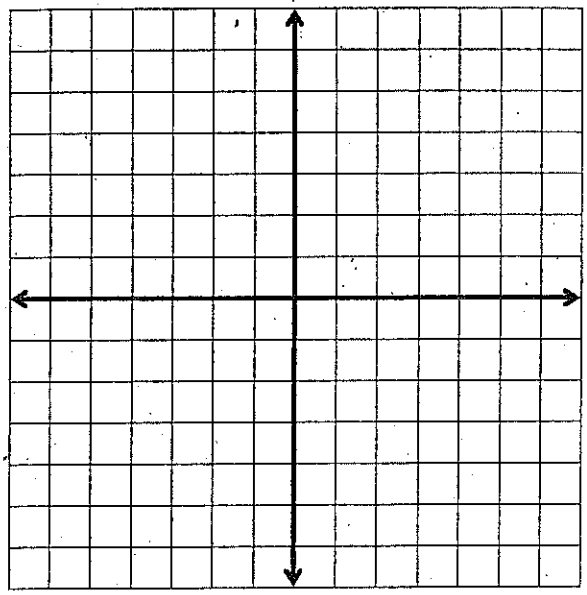
Evaluate each expression for $h = 3$, $k = 2$, and $j = -4$.

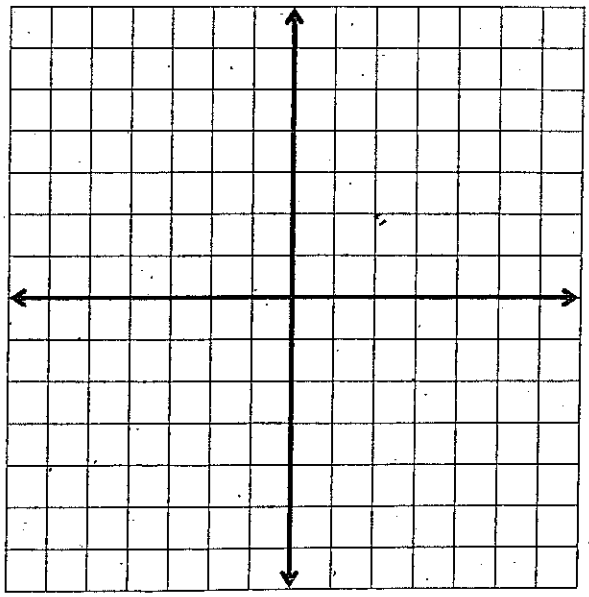
1. hkj
2. kh^2
3. hk^2
4. $kj^2 + h$

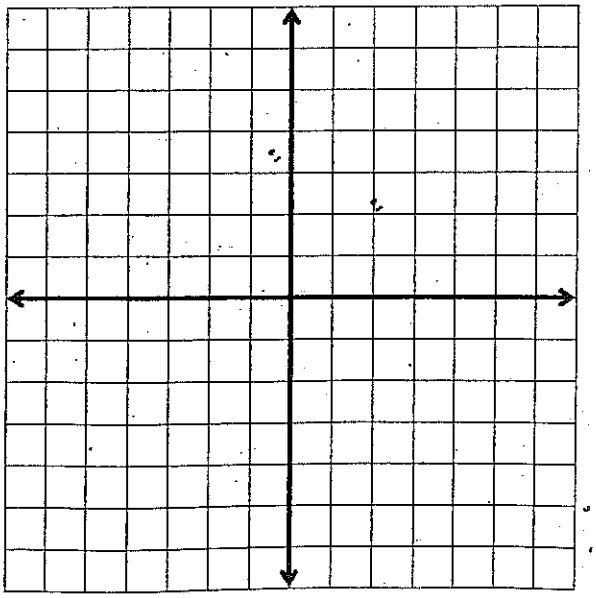
Graph each equation.

5. $y = 2x - 1$
6. $y = |x|$
7. $y = x^2 + 2$



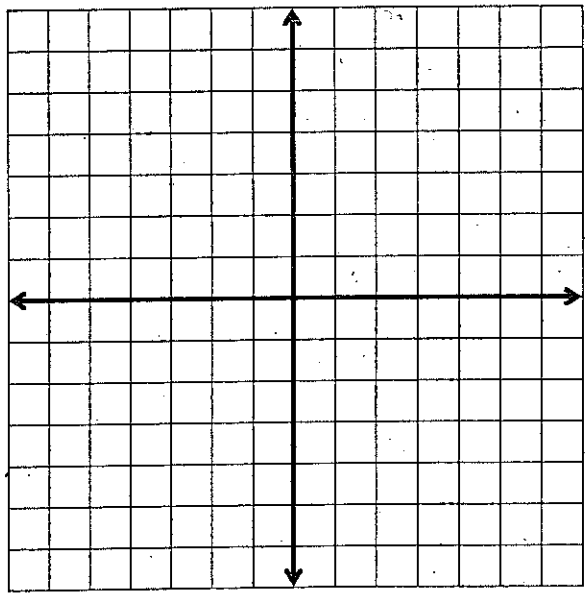


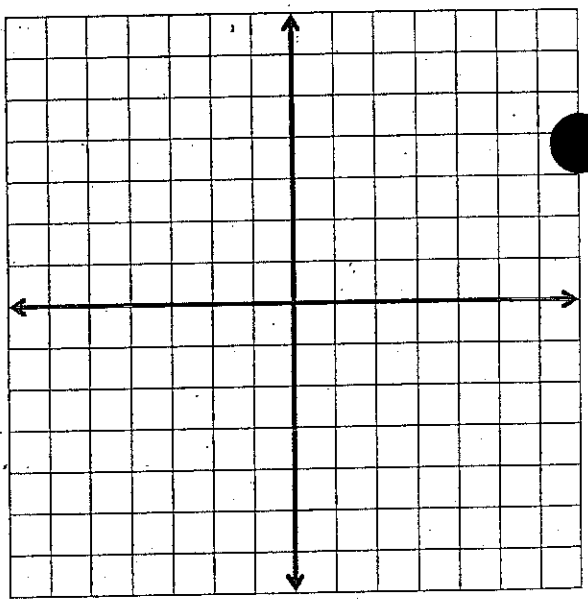


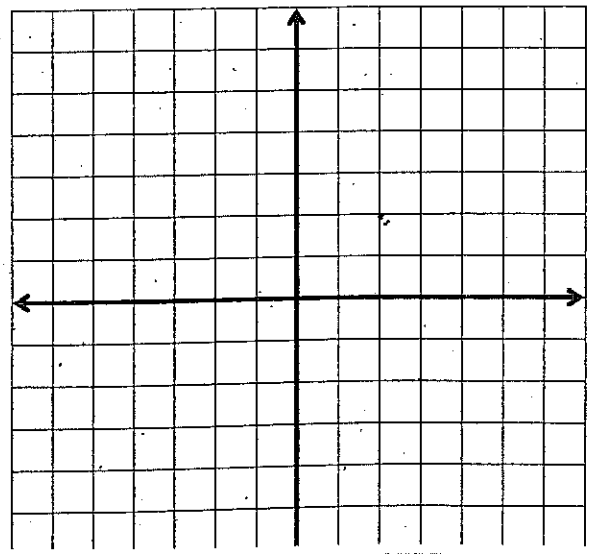


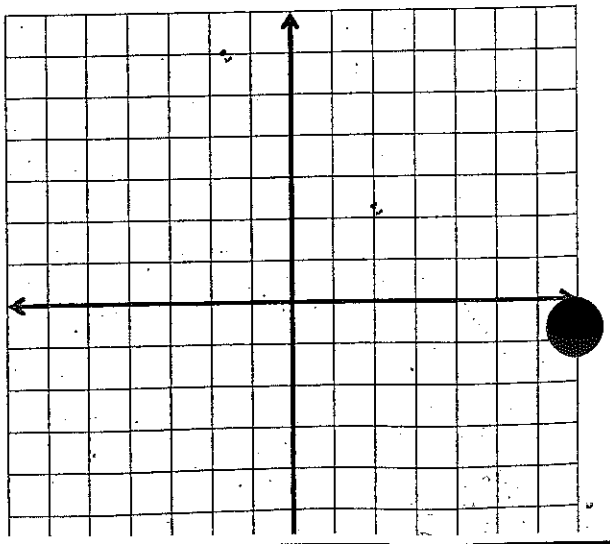
Lesson Quiz — Lesson 10-1

1. a. Graph $y = -\frac{1}{2}x^2 - 1$.
   b. Identify the vertex. Tell whether it is a maximum or a minimum.
   c. Compare this graph to the graph of $y = x^2$.
2. a. Graph $y = 4x^2 + 3$.
   b. Identify the vertex. Tell whether it is a maximum or a minimum.
   c. Compare this graph to the graph of $y = x^2$.
3. Order the quadratic functions $y = -4x^2$, $y = \frac{1}{4}x^2$, and $y = 2x^2$ from widest to narrowest graph.









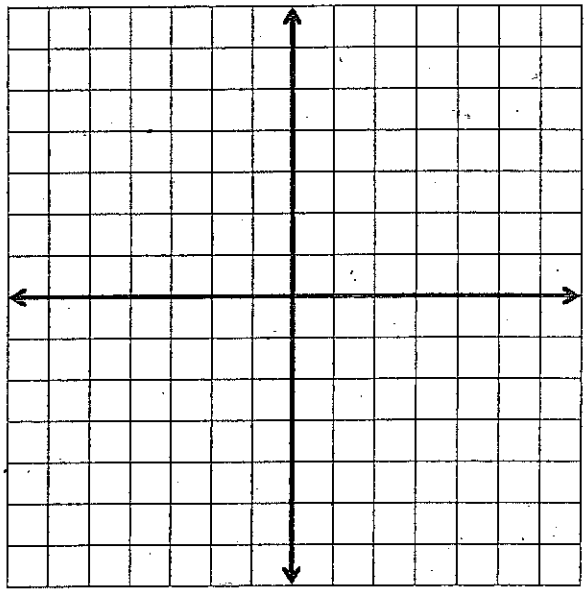
Check Skills You'll Need — Lesson 10-2

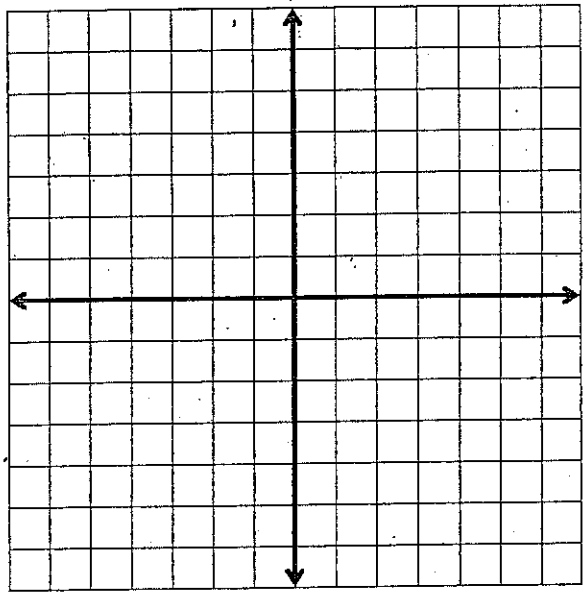
Evaluate the expression $\frac{-b}{2a}$ for the following values of a and b.

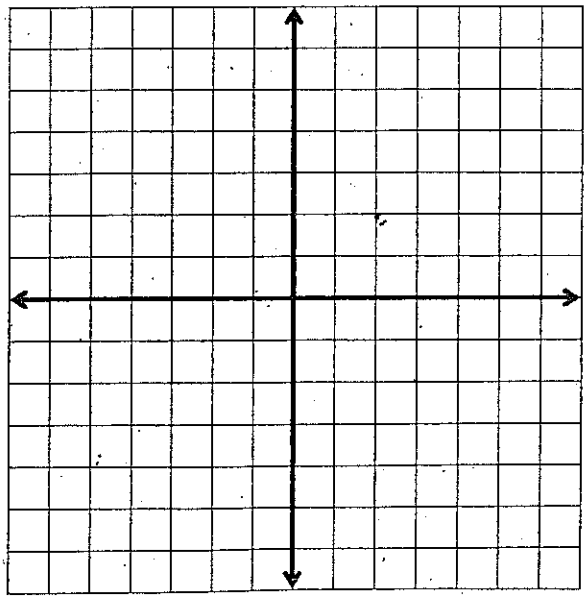
1. $a = -6, b = 4$
2. $a = 15, b = 20$
3. $a = -8, b = -56$
4. $a = -9, b = 108$

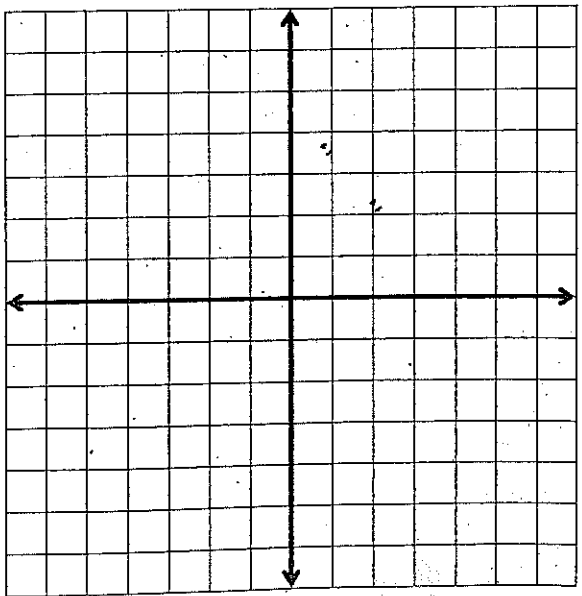
Graph each function.

5. $y = x^2$
6. $y = -x^2 + 2$
7. $y = \frac{1}{2}x^2 - 1$





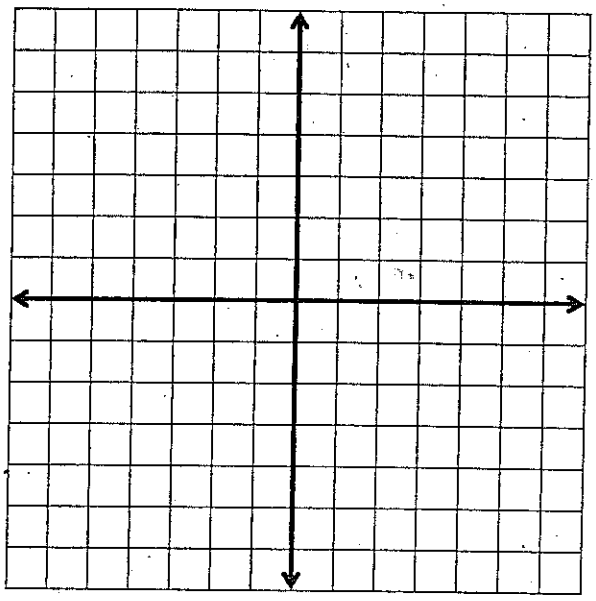


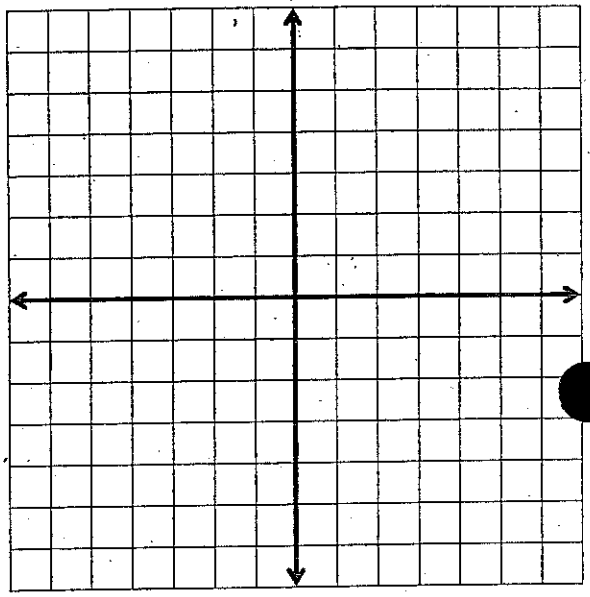


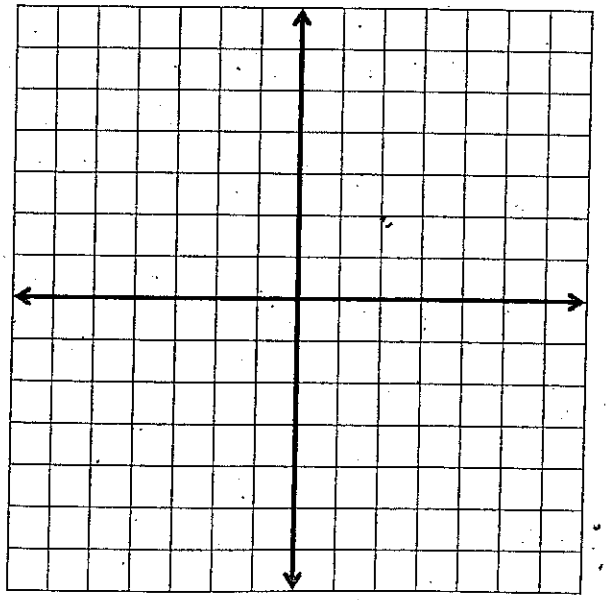
Lesson Quiz — Lesson 10-2

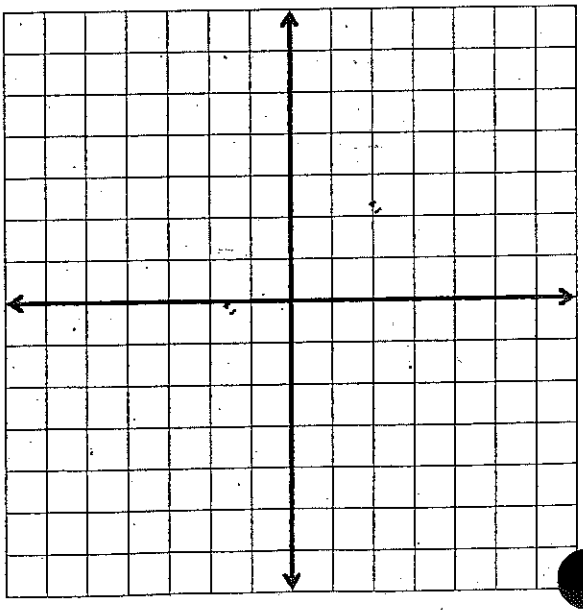
Graph each relation. Label the axis of symmetry and the vertex.

1. $y = x^2 - 8x + 15$
2. $f(x) = -x^2 + 4x - 2$
3. $y \leq -\frac{1}{4}x^2 - 2x - 6$









Check Skills You'll Need — Lesson 10-3

Simplify each expression.

1. 11^2
2. $(-12)^2$
3. $-(12)^2$
4. 1.5^2
5. 0.6^2
6. $\left(\frac{1}{2}\right)^2$
7. $\left(-\frac{2}{3}\right)^2$
8. $\left(\frac{4}{5}\right)^2$

Lesson Quiz — Lesson 10-3

1. Simplify each expression.

   a. $\sqrt{196}$ b. $\pm\sqrt{\frac{4}{25}}$

2. Tell whether each expression is rational, irrational, or undefined.

   a. $\pm\sqrt{\frac{3}{5}}$ b. $\sqrt{-25}$ c. $-\sqrt{2.25}$

3. Between what two consecutive integers is $-\sqrt{54}$?

4. The formula $s = \sqrt{13.5d}$ estimates the speed s in miles per hour that a car was traveling, when it applied its brakes and left a skid mark d feet long on a wet road. Estimate the speed of a car that left a 120-foot-long skid mark.

Check Skills You'll Need — Lesson 11-1

Complete each equation.

1. $a^3 = a^2 \cdot a^{\blacksquare}$
2. $b^7 = b^6 \cdot b^{\blacksquare}$
3. $c^6 = c^3 \cdot c^{\blacksquare}$
4. $d^8 = d^4 \cdot d^{\blacksquare}$

Find the value of each expression.

5. $\sqrt{4}$
6. $\sqrt{169}$
7. $\sqrt{25}$
8. $\sqrt{49}$

Lesson Quiz — Lesson 11-1

Simplify each radical expression.

1. $\sqrt{16} \cdot \sqrt{8}$
2. $4\sqrt{144}$
3. $\sqrt{\frac{12}{36}}$
4. $\frac{2}{\sqrt{a^5}}$
5. $\frac{\sqrt{3x}}{\sqrt{15x^3}}$

Check Skills You'll Need — Lesson 10-4

Simplify each expression.

1. $\sqrt{36}$
2. $-\sqrt{81}$
3. $\pm\sqrt{121}$
4. $\sqrt{1.44}$
5. $\sqrt{0.25}$
6. $\pm\sqrt{1.21}$
7. $\sqrt{\frac{1}{4}}$
8. $\pm\sqrt{\frac{1}{9}}$
9. $\pm\sqrt{\frac{49}{100}}$

Lesson Quiz — Lesson 10-4

1. Solve each equation by graphing the related function. If the equation has no solution, write *no solution.*
   a. $2x^2 - 8 = 0$
   b. $x^2 + 2 = -2$
2. Solve each equation by finding square roots.
   a. $m^2 - 25 = 0$
   b. $49q^2 = 9$
3. Find the speed of a 4-kg bowling ball with a kinetic energy of 160 joules. Use the equation $E = \frac{1}{2}ms^2$, where m is the object's mass in kg, E is its kinetic energy, and s is the speed in meters per second.

Check Skills You'll Need — Lesson 10-5

Solve and check each equation.

1. $6 + 4n = 2$
2. $\frac{a}{8} - 9 = 4$
3. $7q + 16 = -3$

Factor each expression.

4. $2c^2 + 29c + 14$
5. $3p^2 + 32p + 20$
6. $4x^2 - 21x - 18$

Lesson Quiz — Lesson 10-5

1. Solve $(2x - 3)(x + 2) = 0$.

Solve by factoring.

2. $6 = a^2 - 5a$
3. $12x + 4 = -9x^2$
4. $4y^2 = 25$

Check Skills You'll Need — Lesson 10-7

Find the value of c to complete the square for each expression.

1. $x^2 + 6x + c$
2. $x^2 + 7x + c$
3. $x^2 - 9x + c$

Solve each equation by completing the square.

4. $x^2 - 10x + 24 = 0$
5. $x^2 + 16x - 36 = 0$
6. $3x^2 + 12x - 15 = 0$
7. $2x^2 - 2x - 112 = 0$

Lesson Quiz — Lesson 10-7

1. Solve $2x^2 - 11x + 12 = 0$ by using the quadratic formula.
2. Solve $4x^2 - 12x = 64$. Round the solutions to the nearest hundredth.
3. Suppose a model rocket is launched from a platform 2 ft above the ground with an initial upward velocity of 100 ft/s. After how many seconds will the rocket hit the ground? Round the solution to the nearest hundredth.