Name: _____ Date: _____

BLM 7–1

Prerequisite Skills

Powers

1. Write each product as a power.

a) $3 \times 3 \times 3$

b) $(-3)(-3)(-3)(-3)(-3)$

c) $(-1)(-1)(-1)(-1)(-1)(-1)$

d) $\left(\frac{1}{5}\right)\left(\frac{1}{5}\right)\left(\frac{1}{5}\right)\left(\frac{1}{5}\right)\left(\frac{1}{5}\right)$

e) $\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)$

2. Evaluate each power.

a) 6^3 **b)** $(-3)^4$

c) -2^4 **d)** $(-2)^4$

e) -3^3 **f)** $(-3)^3$

g) $\left(\frac{1}{4}\right)^2$ **h)** $\left(-\frac{1}{5}\right)^3$

Linear Relations

3. Identify the slope (m) and the y-intercept (b) of each linear relation.

a) $y = -4x + 2$ **b)** $y = \frac{1}{3}x - 2$

c) $y = 2x + \frac{1}{2}$ **d)** $y = \frac{4}{3}x$

4. Graph each linear relation. Label the y-intercept and any two other points.

a) $y = x + 1$ **b)** $y = -3x + 4$

c) $y = 2x - \frac{1}{2}$ **d)** $y = \frac{1}{3}x + \frac{1}{3}$

5. Jordan works as a sales representative selling gas inserts for fireplaces. He is paid \$500 per week, plus \$3 per insert he sells.

a) Write the amount Jordan earns in a week as a linear relation.

b) How much would Jordan earn in a week where he sold 150 inserts?

c) How many inserts would Jordan need to sell in one week to earn \$875?

Evaluate Formulas

6. Substitute the indicated values. Evaluate for the remaining variable.

a) $A = s^2$ $s = 11$

b) $P = 1500(1 + i)^n$ $i = 0.05$, $n = 15$

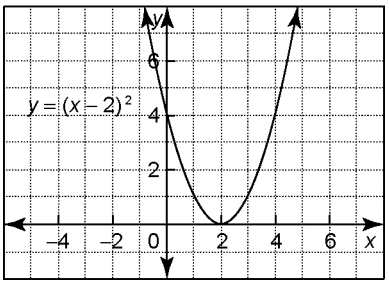
c) $D = m \div v$ $m = 225$, $v = 15$

d) $V = \pi r^2 h$ $r = 2$, $h = 18$

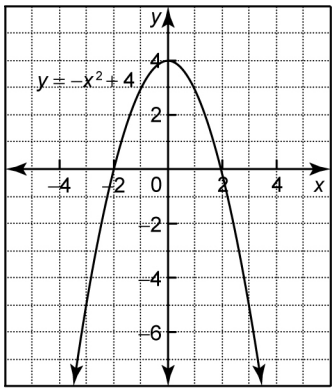
Quadratic Relations

7. Describe how each graph differs from the graph of $y = x^2$.

a)



b)



8. Graph each quadratic relation. Label the vertex and any two other points.

a) $y = (x + 2)^2 - 2$

b) $y = -(x - 1)^2$

c) $y = \frac{1}{2}(x + 1)^2$

d) $y = 2(x - 2)^2 + 3$