Name: _____ Date: _____

BLM 5–1

Chapter 5 Prerequisite Skills

Simplify Expressions

1. Expand and simplify.
a) $3(x - 4) + 7(x + 8)$
b) $2(x - 5)(x + 3)$
c) $4(x + 2)^2$
d) $-3(2x - 1)(x + 5)$
e) $(3x + 2)^2 - (2x + 3)(2x - 3)$

Convert Forms of Quadratic Equations

2. Write each relation in standard form.
a) $y = (x - 15)^2 + 9$ **b)** $y = (x + 7)^2 - 3$
c) $y = 4(x - 1)^2 - 8$ **d)** $y = -3(x - 8)^2 + 14$

Work With Factors

3. List the factors of each number.
a) 24 **b)** –12
c) 45 **d)** –110

4. Find two integers with each product and sum.
a) product 24, sum 11
b) product –15, sum 2
c) product –36, sum –16
d) product –60, sum –11

5. Factor fully.
a) $x^2 + 3x$ **b)** $x^3 - 4x^2 + 2x$
c) $-2x^3 + 10x^2 - 6x$ **d)** $x^2 + 8x + 15$
e) $w^2 - 3w - 4$ **f)** $5t^2 - 20$
g) $3k^2 + 12k - 36$ **h)** $-5m^2 + 25m - 30$

Evaluate Equations

6. Evaluate y using the given value of x.
a) $y = 3x + 2$ when $x = -2$
b) $4x - 5y + 11 = 0$ when $x = 1$
c) $y = 2x^2 - 5x + 9$ when $x = -3$
d) $y = (7 - x)(2 + x)$ when $x = -5$

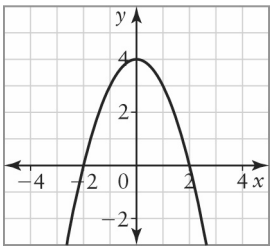
7. Solve for x.
a) $5(x + 3) = 2x$ **b)** $-8x + 22 = -50$
c) $x^2 - 9 = 0$ **d)** $(3x - 2)(x + 9) = 0$

Solve Quadratic Equations

8. Find the zeros of each quadratic relation.
a) $y = x^2 + 5x + 6$ **b)** $y = x^2 + x - 12$
c) $y = x^2 - 1$ **d)** $y = x^2 + 7x$
e) $y = x^2 + 6x + 9$ **f)** $y = 2x^2 + 6x - 20$

Interpret Graphs

9. Find the x-intercepts.



Recognize Types of Functions

10. Use finite differences to determine whether each relation is linear, quadratic, or neither.

a)

x	y
0	–3
1	–1
2	5
3	15
4	29

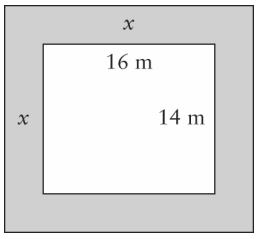
b)

x	y
–2	–26
–1	–12
0	–10
1	–8
2	6

Solve Word Problems

11. A kicker is trying to kick a field goal. The path of the football can be modelled by the relation $h = -0.03d^2 + 1.2d$, where h is the ball's height and d is the horizontal distance from the kicker, both in metres.
a) Find the zeros of the relation.
b) What do the zeros represent here?

12. A garden is to be surrounded by a paved walkway of uniform width.



a) Write a simplified expression for the area of the walkway.
b) The walkway is to have an area of 216 m^2. Find the width of the walkway.

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