Name: _____ Date: _____

Chapter 6 Prerequisite Skills

BLM 6–1

Identify Patterns

1. Determine the next three items in each pattern.
a) 1, 2, 4, 8, 16, …
b) 2, 3, 5, 7, 11, 13, …
c) $a, B, c, D, e, F, \ldots$
d) $x^9, x^8y, x^7y^2, x^6y^3, \ldots$

Evaluate Functions

2. For the function $h(t) = 4y - 7$, determine
a) $h(-2)$ **b)** $h(3t + 5)$
c) $h\left(\frac{3}{4}\right)$ **d)** $h(2m - 2)$

3. For the function $f(x) = 2x^2 - x - 2$, determine
a) $f(-3)$ **b)** $f(1)$
c) $f\left(-\frac{1}{4}\right)$ **d)** $f(2x^2)$

4. For $g(x) = 3(4)^{x-1} + 2$, determine
a) $g(1)$ **b)** $g(0)$
c) $g\left(\frac{1}{2}\right)$ **d)** $g(k + 1)$

Graph Functions

5. Sketch the graph of each function for $\{x \in \mathbb{R}\}$.
a) $y = 2x + 5$ **b)** $y = (3)^x + 3$
c) $y = x^2 - 2x - 1$ **d)** $y = (x - 1)^2 + 2$

Solve Equations

6. Solve each equation and check your solutions.
a) $2x + 7 = x - 4$
b) $2(y - 1) + 3(2y + 5) = -3$
c) $\frac{k}{2} - 6 = -4$
d) $\frac{x}{3} - \frac{x}{4} = 2$

Evaluate Expressions

7. Evaluate.
a) 15% of 224 **b)** 9% of 81
c) 225% of 16 **d)** 75% of 0.24

8. Evaluate.
a) $\frac{2}{3} - \frac{1}{6}$ **b)** $\frac{3}{4} \times \left(-\frac{8}{9}\right)$
c) $-\frac{4}{7} \div \frac{8}{5}$ **d)** $\frac{14}{5} \times 15$

Finite Differences

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

a)

x	y
–3	44
–2	24
–1	10
0	2
1	0
2	4

b)

x	y
–1	$\frac{9}{2}$
0	4
1	3
2	1
3	–3
4	–11

10. a) Determine the second difference for the function $y = 3x^2 - 4x + 1$.
b) Explain how to use the value of the coefficient of x^2 in the expression to find the value of the second difference.
c) Use your answer from part b) to find the value of the constant second difference for the function $y = -4x^2 - 2x + 1$.
d) Find the second difference to verify your answer to part c) using a table of values.

Solve Linear Systems of Equations

11. Solve each system of equations.
a) $y = 3x - 5$
$x - y = 3$
b) $5x - 4y = 1$
$2x + y = -10$
c) $\frac{3}{2}x - \frac{4}{3}y = -14$
$\frac{1}{4}x + \frac{2}{5}y = 7$

978-0-07-000985-1