1-2

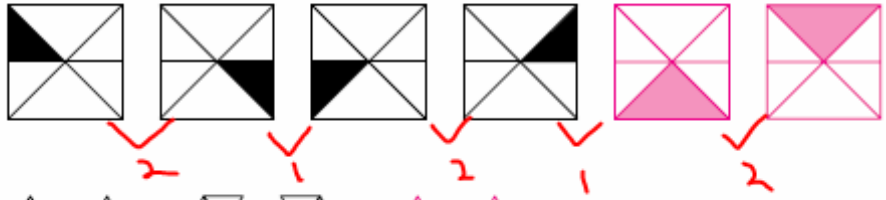
NAME _____ DATE _____

Practice

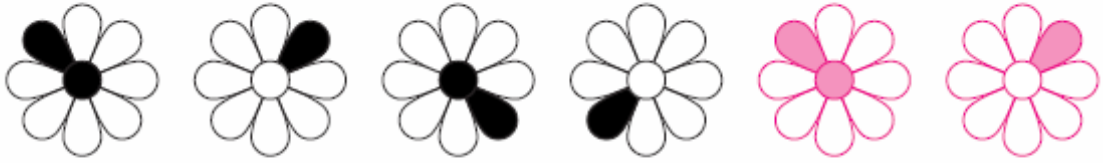
Student Edition
Pages 12–18

Patterns and Sequences

Give the next two items for each pattern.

1. 

2. 

3. 

4. 5, 7.5, 10, 12.5, ⋯ **15 and 17.5**

5. 8, 64, 512, 4096, ⋯ **32,768 and 262,144**

6. $c + 6, c + 12, c + 24, \cdots$ **$c + 48$ and $c + 96$**

7. $m - 5y, m - 15y, m - 45y, \cdots$ **$m - 135y$ and $m - 405y$**

8. a. Draw the next two figures in the following pattern.

b. What is the color of the 66th figure? Explain your reasoning.
Black; multiples of three are black.

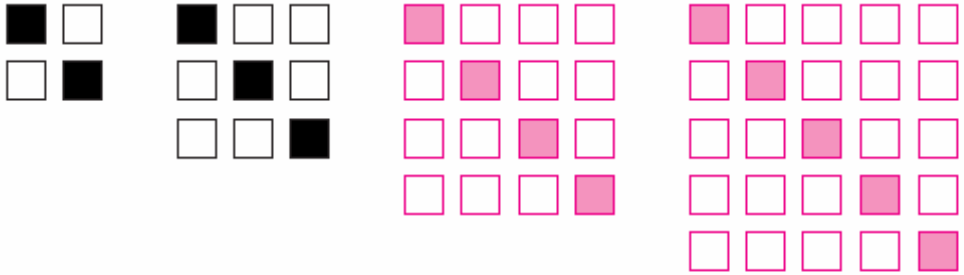
c. How many sides will the 19th figure have? **19 sides**

9. a. Find each product.
9×2 **18** 9×3 **27** 9×4 **36** 9×5 **45**

b. Write the sequence of numbers representing the numbers in the tens place. **8, 7, 6, 5, ⋯**

c. What are the next four numbers in this sequence? **4, 3, 2, 1**

10. Draw the next two figures in the following pattern.



1-3 Order of Operations (O.O.O.) = O^3

Notes:

Please	Parentheses
Explain	Exponents
MeDian and	Multiplication & Division (left to right)
ScAle	Addition & Subtraction (left to right)

xamples:

Evaluate each expression.

a. $3(3+7)^2 \div 5$

$3(10)^2 \div 5$

$3 \cdot 100 \div 5$

$300 \div 5 = 60$

b. $27 \div 3(5-3)^2$

$27 \div 3 \cdot 2^2$

$27 \div 3 \cdot 4$

$9 \cdot 4 = 36$

Evaluate $\frac{2}{3}[8(a-b)^2 + 3b]$ if a = 6 and b = 3

$\frac{2}{3}[8(6-3)^2 + 3 \cdot 3]$

$\frac{2}{3}(8 \cdot 3^2 + 3 \cdot 3)$

$\frac{2}{3}(8 \cdot 9 + 3 \cdot 3)$

$\frac{2}{3}(72 + 9)$

$\frac{2}{3} \cdot \frac{81^{27}}{1} = 54$

In the rectangle below, a = 12mm

a. Find the perimeter of the rectangle.

b. Find the area of the rectangle.

a = 12

8 = a-4 [ ]

a) $P = 2l + 2w$

$P = 2 \cdot 8 + 2 \cdot 12$

$= 16 + 24$

$= 40$ mm

b) $A = lw$

$= 12 \cdot 8$

$= 96\ mm^2$

4. Use a calculator to evaluate $\frac{a^6 - 22}{a^3 + x^7}$ if a = 12 and x = 9.

Round to the nearest hundredth.

$$\frac{(12^6 - 22)}{(12^3 + 9^7)} = 0.62$$

key sequence

(12 $\wedge$ 6 = 22) ÷ (12 $\wedge$ 3 + 9 $\wedge$ 7) =

y^x

x^y

1-3

NAME _____ DATE _____

Practice

Student Edition
Pages 19–24

Order of Operations

Evaluate each expression.

1. $(5 + 3) \div 2 + 2$ **6**

2. $7 \cdot 5 - 3 \cdot 4$ **23**

3. $3 \cdot 6 + 9 \div 3 - 6$ **15**

4. $5^3 - 8 \cdot 5 + 6$ **91**

5. $(3 + 6) \div 3^2$ **1**

6. $6 \cdot (12 - 7.5) - 7$ **20**

7. $(8 - 3)(12 \div 4) - 5$ **10**

8. $2.1 \div (0.5 + 0.2)$ **3**

9. $20 \div 4 \cdot 5 \cdot 2 \div 10$ **5**

10. $125 \div [5(2 + 3)]$ **5**

11. $(6 + 8)(8 - 3) \div (9 + 3 - 2)^2$ **0.7**

12. $3(2^3 + 4^2)$ **72**

13. $50 - \frac{1}{2}(17 + 5)$ **39**

14. $6(0.2 + 0.3) - 0.25$ **2.75**

15. $\frac{(6 + 2)^2}{16} + 3 \cdot 9$ **31**

16. $\frac{8^2 - 6(4)}{2(5)} - 4$ **0**

17. $[6^2 - (2 + 4)2]3$ **72**

18. $\frac{6^2 - 4^2}{2(3 - 2)} - 2^3$ **2**

19. $5\left[\frac{1}{2} + \left(\frac{3}{5} \cdot \frac{5}{6}\right) \div \frac{5}{8}\right]$ **$6\frac{1}{2}$**

20. $\left[\frac{3}{4} \cdot \frac{2}{3} - \left(\frac{1}{2} - \frac{1}{3}\right)\right]12$ **4**

21. $6 - \left[\frac{2 + 7}{3} - (2 \cdot 3 - 5)\right]$ **4**

22. $12\left[10 - \frac{(5^2 - 6)3}{6}\right]$ **6**