

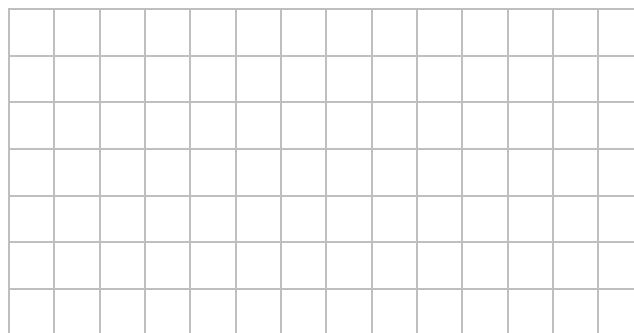
## Unit 3: Number Sense

### Quiz (Lessons 58–63) — ON & WNCP

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Use the grid to show that the numbers 9 and 25 are perfect squares.



2. Explain why 20 is not a perfect square.

3. Calculate the perfect square.

a)  $3^2$

= \_\_\_\_\_

b)  $7^2$

= \_\_\_\_\_

c)  $5^2$

= \_\_\_\_\_

d)  $4^2$

= \_\_\_\_\_

e)  $9^2$

= \_\_\_\_\_

4. Make a factor rainbow for 18: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

5. Evaluate.

a)  $\sqrt{25}$

b)  $\sqrt{36}$

c)  $\sqrt{64} + \sqrt{9}$

d)  $\sqrt{25 + 144}$

6. a) Find the prime factorization of 144.

b) Explain using the prime factors how you can tell 144 is a perfect square.

## Unit 3: Number Sense

continued

### Quiz (Lessons 58–63) — ON & WNCP

7. a) Which two consecutive whole numbers is  $\sqrt{43}$  between? \_\_\_\_\_ and \_\_\_\_\_

b) Estimate  $\sqrt{43}$  to one decimal place by checking and revising.

**BONUS:** Evaluate.

a)  $\sqrt{400}$

b)  $\sqrt{160\,000}$

## Unit 3: Number Sense

Answer Key

### Quiz (Lessons 58–63) — ON & WNCP

1. Teacher to check for squares with sides 3 and 5.
2. You cannot draw a square with area 20 units<sup>2</sup> having whole numbers as lengths of sides.
3.
  - a) 9
  - b) 49
  - c) 25
  - d) 16
  - e) 81
4. Teacher to check rainbow.  
1 & 18, 2 & 9, 3 & 6
5.
  - a) 5
  - b) 6
  - c)  $8 + 3 = 11$
  - d)  $\sqrt{169} = 13$
6.
  - a)  $2 \times 2 \times 2 \times 2 \times 3 \times 3$
  - b) There are an even number of each prime in the factorization.
7.
  - a) 6 and 7
  - b)  $6.5^2 = 42.25$   
 $6.6^2 = 43.56$   
 $\sqrt{43} \doteq 6.6$

#### BONUS

- a) 20
- b) 400

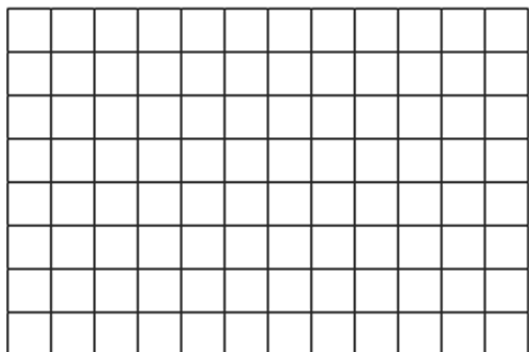
## Unit 3: Number Sense

### Test (Lessons 58–63) — WNCP

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Draw all non-congruent rectangles with area 12. Explain why 12 is not a perfect square.



2. Draw the factor rainbow of 16. Which factor is the square root? How do you know?

3. a) The prime factorization of 12 is  $2 \times 2 \times 3$ .

What is the prime factorization of  $12^2 = 12 \times 12$ ? \_\_\_\_\_

- b) The prime number 2 occurs 6 times in the prime factorization of 64.

How many times will 2 occur in the prime factorization of  $64^2$ ? \_\_\_\_\_

4. Decide whether or not 1 575 is a perfect square by finding its prime factorization. Justify your answer.

## Unit 3: Number Sense

continued

### Test (Lessons 58–63) — WNCP

5. Evaluate.

a)  $\sqrt{25} - \sqrt{16}$

b)  $\sqrt{64} \div \sqrt{16}$

**BONUS:**  $\left[ \sqrt{49} \times (\sqrt{9} + \sqrt{4}) - \sqrt{25} \right] \div (\sqrt{9} + \sqrt{9})$

6. Which two consecutive whole numbers is  $\sqrt{55}$  in between? \_\_\_\_\_ and \_\_\_\_\_  
How do you know?

7. Round each square root to the nearest whole number by using the square roots of perfect squares as benchmarks.

a)  $\sqrt{15} \approx$  \_\_\_\_\_      b)  $\sqrt{38} \approx$  \_\_\_\_\_      c)  $\sqrt{45} \approx$  \_\_\_\_\_      d)  $\sqrt{94} \approx$  \_\_\_\_\_

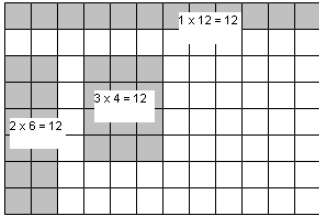
8. Estimate  $\sqrt{29}$  to one decimal place by guessing, checking, and revising.  
Show your work.

# Unit 3: Number Sense

Answer Key

## Test (Lessons 58–63) — WNCP

1.



There is no square, so 12 is not a perfect square.

2.



4 is the square root because it loops to itself.

3. a)  $2 \times 2 \times 2 \times 2 \times 3 \times 3$

b) 12

4.  $1\,575 = 3 \times 3 \times 5 \times 5 \times 7$

7 occurs an odd number of times, so 1 575 is not a perfect square.

5. a)  $5 - 4 = 1$

b)  $8 \div 4 = 2$

### BONUS

$$\begin{aligned} & [7 \times (3 + 2) - 5] \\ & \div (3 + 3) \\ & = (7 \times 5 - 5) \div 6 \\ & = (35 - 5) \div 6 \\ & = 30 \div 6 \\ & = 5 \end{aligned}$$

6.  $49 < 55 < 64$ , which means that:

$$\begin{aligned} & \sqrt{49} < \sqrt{55} < \sqrt{64} \\ & \therefore 7 < \sqrt{55} < 8 \end{aligned}$$

7. a) 4

b) 6

c) 7

d) 10

8. 5.4