

# Unit Test Study Guide

1. Find the prime factorization of each number. Show your work.

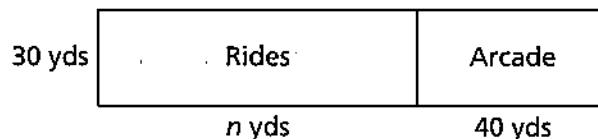
a. 72

b. 132

2. What number has the prime factorization  $2^2 \times 3 \times 5^2 \times 7$ ? Show how you found the number.

3. A number is less than 85. The number has 26 and 6 as factors. Find the number and explain how you found it.

4. The owners of an amusement park want to add more rides and an arcade in an open field. Below is a sketch of their plan. The owners do not know all of the measurements of the field.



Write two expressions for the area of the whole field.

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5. "Sam" and "Martha" are the local names for two lighthouses that guard a particularly dangerous part of the coast. Sam blinks every 12 seconds, and Martha blinks every 8 seconds. They blink together at midnight. How many seconds will pass before they blink together again?
6. Carlos is packing sacks for treats at a party. Every sack has exactly the same treats in it. Carlos has 96 granola bars and 64 small popcorn balls.
- What is the greatest number of treat sacks Carlos can make? Show your work.
  - How many of each kind of treat is in one sack? Show your reasoning.
7. a. What is the greatest common factor of 30 and 42?
- What is the least common multiple of 30 and 42?
  - Find another common multiple of 30 and 42.

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8. Dawson wrote the factorization  $3^2 \cdot 5^2$ . Without finding the actual number, how can Dawson tell if the number is even or odd?

9. Find the value of the expression  $30 - 3^2 \div 3 + 8(2)$ .

10. Is each expression equivalent to  $6 \times 53$ ? Justify your reasoning.

a.  $6 \times 50 + 6 \times 3$

b.  $10 \times 53 - 4 \cdot 53$

c.  $6 \cdot 50 + 3$

d.  $6 \times (50 + 3)$