

Practice Problems for Test 2

1. Angelica scored at the 65th percentile nationally on a standardized test of writing skills. However, she scored at the 60th percentile among females who took the test. Which of the following would explain this disparity?
 - (a) Females tend to score higher on this test than males.
 - (b) Females tend to score lower on this test than males.
 - (c) Fewer females than males take this test.
 - (d) The distributions for both males and females are skewed.
2. Cristina, a 3rd grader, recently took a state assessment in mathematics and correctly answered 75% of the questions. Her scaled score of 305 was 5 points higher than the minimum state proficiency cut-point in mathematics, which is 300. Which of the following must be true?
 - (a) The median score for 3rd-graders is less than 300.
 - (b) 25% of the 3rd graders in Cristina's state scored higher in math than Cristina.
 - (c) A 3rd grader who answered 80% of the questions correctly would exceed the minimum proficiency cut-point in math in Cristina's state.
 - (d) A 3rd grader who scored at the 75th percentile would exceed the minimum proficiency cut-point in math in Cristina's state.
3. Find the mean, median, and mode of the following data set: 8, 4, 2, 8, 7, 9, 8, 9, 3, 6
4. Answer "true" or "false":
 - (a) The product of two rational numbers is always rational.
 - (b) The square root of a natural number is always irrational.
 - (c) The sum of two irrational numbers is always irrational.
 - (d) Prime numbers are irrational.
 - (e) Integer numbers are rational.
 - (f) Any given real number is either rational or irrational.
 - (g) Infinite decimal numbers are irrational.
 - (h) The sum of a rational number and an irrational number is always irrational.
 - (i) The product of a rational number and an irrational number is always irrational.
5. Find a rational number between 3.456 and 3.457.
6. Find an irrational number between 5.2 and 5.3.

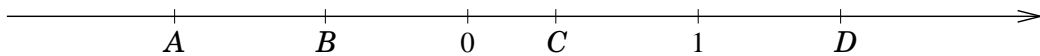
7. Answer “true” or “false”:

- (a) 6 divides 18
- (b) 9 divides 3
- (c) 7 divides 7
- (d) 4 is divisible by 8
- (e) 20 is divisible by 5
- (f) 10 is divisible by 10
- (g) 3 is a factor of 12
- (h) 24 is a factor of 8
- (i) 13 is a factor of 13
- (j) 5 is a multiple of 30
- (k) 30 is a multiple of 2
- (l) 100 is a multiple of 100

8. Find the prime factorization of 300.

9. Find the greatest common factor and the least common multiple of 300 and 630.

10. Numbers A , B , C , and D are shown on the real number line below. Determine (approximately) the locations of the following numbers:



- (a) $A + C$
- (b) $D - -B$
- (c) CD
- (d) A/B

11. Find all

- (a) natural
- (b) integer
- (c) real

solutions of the following equation: $(x - 2)(x + 2)(2x + 1) = 0$.

12. Find all

- (a) natural
- (b) integer
- (c) real

solutions of the following equation: $\frac{3}{x + 2} = \frac{2}{x + 3}$.