

## ISEE Lower Level Quantitative Reasoning Sample Questions

**Quantitative Reasoning** is one of two math sections on the ISEE. This section is designed to show how your reasoning skills have developed. It tests your ability to use your understanding of mathematics to develop your own opinions about how to solve math problems.

All questions found in the two math sections of the ISEE are linked to the National Council of Teachers of Mathematics (NCTM) Standards. The ISEE uses the following NCTM strands as a basis for this Quantitative Reasoning section:

- Numbers and Operations
- Algebra
- Geometry
- Measurement
- Data Analysis and Probability
- Problem Solving

### Sample Questions

Directions: Answer the following sample question. Select the answer that best illustrates numbers and operations.

1. Alyssa is ordering T-shirts for all the students in her school. She knows how many students are in the school, and she knows how many shirts come in a box. How would she figure out how many boxes ( $b$ ) to order?

- (A)  $b = \text{the number of boxes} \times \text{the number of shirts per box}$
- (B)  $b = \text{the number of boxes} + \text{the number of shirts per box}$
- (C)  $b = \text{the number of students} \div \text{the number of shirts per box}$
- (D)  $b = \text{the number of students} - \text{the number of shirts per box}$

2. Which diagram represents the distributive property?

- (A)  $\square + \bigcirc = \square + \bigcirc$
- (B)  $\triangle \times \square = \square \times \triangle$
- (C)  $\triangle (\bigcirc + \square) = \triangle \times \bigcirc \times \square$
- (D)  $\triangle (\bigcirc + \square) = (\triangle \times \bigcirc) + (\triangle \times \square)$

3. The table shows items that Julie bought at the grocery store. She bought at least one of each item on the list.

Grocery List		
Item	Price for One	Total Cost for Item
loaf of bread	\$1.25	\$2.50
gallon of milk	\$4.75	\$4.75
carton of eggs	\$1.50	\$1.50
bag of cookies	\$2.50	?

If Julie spent a total of \$13.75, how much money did she spend just on cookies?

- (A) \$1.25
- (B) \$3.75
- (C) \$5.00
- (D) \$7.50

## Algebraic Concepts

### Sample Questions

Directions: Answer the following sample question. Select the answer that most clearly illustrates the concepts asked for.

1. At the hardware store, Jim bought 2 boxes of nails that cost \$6 each and a hammer. His total before tax was \$22. Which equation could be used to find the cost of the hammer ( $h$ )?

- (A)  $6 + h = \$22$
- (B)  $6 + 2h = \$22$
- (C)  $2(6) + h = \$22$
- (D)  $2(6) + 2h = \$22$

2. The total combined weight of a sphere, a pyramid, and a cube is 14 grams. If the sphere weighs the same as 2 pyramids and the cube weighs the same as 4 pyramids, how many grams does a pyramid weigh?

- (A) 2 grams

- ☐ B 4 grams
- ☐ C 6 grams
- ☐ D 8 grams

## Geometry

### Sample Questions

Directions: Answer the following sample question. Select the answer that most clearly illustrates the relationships among the dimensional figures.

1. In which pair of letters do both letters have an equal number of lines of symmetry?

- ☐ A Z H
- ☐ B N A
- ☐ C O K
- ☐ D E C

2. The points with coordinates (1, 1) (1, 5) (5, 5) (5, 1) are the vertices of a quadrilateral. If all four points are connected to form a quadrilateral, which term best describes the quadrilateral formed?

- ☐ A kite
- ☐ B pentagon
- ☐ C square
- ☐ D trapezoid

## Measurement

### Sample Questions

Directions: Answer the following sample question. Select the answer that best illustrates measurement rules.

Figure 1 is a 5-inch square. Four 2-inch squares are removed from each of the four corners of Figure 1.

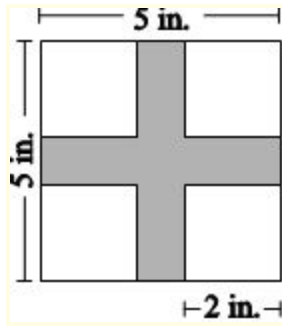


Figure 1

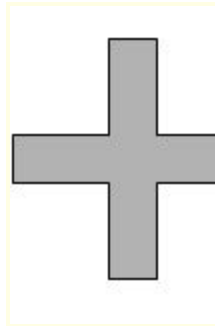


Figure 2

What is the area of the remainder of Figure 1, as shown in Figure 2?

- (A) 6 in.<sup>2</sup>
- (B) 9 in.<sup>2</sup>
- (C) 21 in.<sup>2</sup>
- (D) 25 in.<sup>2</sup>

## Data Analysis and Probability

### Sample Questions

Directions: Answer the following sample question. Select the answer that best illustrates the use of data analysis and probability.

1. Mrs. Brown's box of 24 assorted markers contains 2 red, 3 blue, 4 green, 6 yellow, 4 pink, and 5 purple markers. If she randomly selects a marker without looking, which color has a 1 out of 8 chance of being selected?

- (A) red
- (B) blue
- (C) pink
- (D) yellow

2. Stephen's class spent time at the City Zoo collecting data about animals and their habitats. The students had to list, in categories or groups, what they observed.

STEPHEN'S OBSERVATION LIST

1. kinds of animals at the zoo: lions, monkeys, snakes, pandas, alligators
2. ?
3. colors of the animals at the zoo: yellow, brown, red and brown, black and white, green

Which information completes Stephen's observation list?

- ☐ A ages of animals at the zoo
- ☐ B number of animals at the zoo
- ☐ C food that the animals at the zoo eat
- ☐ D dimensions of the animal cages at the zoo