## 2006

# ISAT Sample Book 

## Illinois Standards Achievement Test

## GRADE



# Sample Items for Reading and Mathematics 

ILLINOIS STATE BOARD OF EDUCATION



## 3

Last year there were 80 students enrolled in the eighth-grade class. This year the number of students enrolled in the eighth-grade class increased by $10 \%$.

How many students are enrolled in the eighth-grade class this year?

| 8 | 81 | 88 | 90 |
| :---: | :---: | :---: | :---: |
| A | B | C | D |

2
Amy has $\frac{3}{4}$ of a yard of string to make bracelets. Each bracelet requires $\frac{1}{8}$ of a yard of string.

What is the greatest number of bracelets Amy can make with this length of string?
8
6
4
3
A
B
C
D

## 4

A company packs its coffee into cylindrical containers. The height of each container is 6 inches, and the radius of the container is 3 inches.

Which is closest to the volume of one of these cylindrical containers? (Use 3.14 for $\pi$.)

A 36 cubic inches
B 54 cubic inches
C 113 cubic inches
D 170 cubic inches

5
When filled to capacity, a container holds 4.6 liters of liquid. How many milliliters $(\mathrm{mL})$ is this?

A 0.46 mL
B 46 mL
C 460 mL
D 4600 mL

## 6

Look at the addition patterns below.
$1+3=4$
$1+3+5=9$
$1+3+5+7=16$
$1+3+5+7+9=25$

How many consecutive odd integers starting with 1 must be added to produce 64 ?
6
A
B
C
B D

## 7

Which of the following equations represents the relationship between $x$ and $y$ in the table?

| $x$ | $y$ |
| :---: | :---: |
| 0 | 2 |
| 1 | 5 |
| 2 | 8 |
| 3 | 11 |
| 4 | 14 |

A $y=2 x$
B $y=x+2$
C $y=5 x$
D $y=3 x+2$

The graph of a line contains the points $(5,3)$ and $(5,-1)$.

Which of the following must be true about the graph of this line?

A The line intersects the $x$-axis.
B The slope of the line is negative.
C The line intersects the $y$-axis.
D The slope of the line is positive.

9
The inequality $70^{\circ}<x<80^{\circ}$ represents the range of the ideal water temperature, in degrees Fahrenheit, for Sammy's fish.

Which statement is true about the situation?

A The ideal water temperature is less than $70^{\circ} \mathrm{F}$.
B The ideal water temperature is greater than $80^{\circ} \mathrm{F}$.
C The ideal water temperature is between $70^{\circ} \mathrm{F}$ and $80^{\circ} \mathrm{F}$.
D The ideal water temperature is less than $70^{\circ} \mathrm{F}$ or greater than $80^{\circ} \mathrm{F}$.

10
What is the value of $x$ in the triangle shown?


24
49
54
59
A
B
C
D

## 11

Line $l$ intersects parallel lines $m$ and $n$ as shown.


Which list contains all the angles that are congruent to $\angle 1$ ?

A $\angle 3, \angle 5, \angle 7$
B $\angle 3, \angle 6, \angle 8$
C $\angle 2, \angle 3, \angle 4$
D $\angle 2, \angle 7, \angle 8$
$\triangle X Y Z$ is similar to $\triangle R S T$.


What is the length of $\overline{S T}$ ?
10 cm
A
9 cm
B
8.5 cm
C
7.5 cm
D

The circle graph below represents a total of 240 animals at a zoo. The shaded sector represents the number of monkeys at this zoo.

## 240 Animals at a Zoo



How many monkeys are at this zoo?

8
20
30
A
B
C
D


Mike has only 2 red apples and 3 green apples in a bowl. Without looking he chooses an apple and gives it to his sister. Then he chooses an apple for himself.

What is the probability that he and his sister will each get a red apple?

| $10 \%$ | $30 \%$ | $40 \%$ | $60 \%$ |
| :---: | :---: | :---: | :---: |
| A | B | C | D |

## Answer Key with Assessment Objectives Identified

| Item Number | Correct Answer | Assessment Objective |
| :---: | :---: | :---: |
| 1 | C | 6.8.07 Identify and locate rational and irrational numbers (e.g., $\pi, \sqrt{2}, \sqrt{5}$ ) on a number line. |
| 2 | B | 6.8.09 Solve problems and number sentences involving addition, subtraction, multiplication, and division using rational numbers, powers, and roots. |
| 3 | C | 6.8.18 Solve number sentences and problems involving fractions, decimals, and percents (e.g., percent increase and decrease, interest rates, tax, discounts, tips). |
| 4 | D | 7.8.04 Solve problems involving the volume or surface area of a right rectangular prism, right circular cylinder, or composite shape using an appropriate formula or strategy. |
| 5 | D | 7.8.05 Solve problems involving unit conversions within the same measurement system for length, weight/mass, capacity, square units, and measures expressed as rates (e.g., converting feet/second to yards/minute). |
| 6 | C | 8.8.01 Analyze, extend, and create sequences or linear functions, and determine algebraic expressions to describe the nth term of a sequence. |
| 7 | D | 8.8.08 Translate between different representations (table, written, graphical, or pictorial) of whole number relationships and linear expressions. |
| 8 | A | 8.8.09 Interpret the meaning of slope and intercepts in linear situations. |
| 9 | C | 8.8.11 Represent and analyze problems with linear equations and inequalities. |
| 10 | D | 9.8.02 Solve problems that require knowledge of triangle and quadrilateral properties (e.g., triangle inequality). |
| 11 | A | 9.8.08 Identify or analyze relationships of angles formed by intersecting lines (including parallel lines cut by a transversal) and angles formed by radii of a circle. |
| 12 | B | 9.8.11 Solve problems involving congruent and similar figures. |
| 13 | B | 10.8.01 Read, interpret (including possible misleading characteristics), and make predictions from data represented in a bar graph, line (dot) plot, Venn diagram (with two or three circles), chart/table, line graph, scatterplot, circle graph, stem-and-leaf plot, or histogram. |
| 14 | A | 10.8.04 Identify or draw a reasonable approximation of the line of best fit from a set of data or a scatter plot, and use the line to make predictions. |
| 15 | A | 10.8.06 Solve problems involving the probability of an event composed of repeated trials, compound events (including independent events), or future events with or without replacement. |

To view all the mathematics assessment objectives, download the Illinois Mathematics Assessment Framework for Grades 3-8 online at www.isbe.net/assessment/IAFindex.htm.

