
Introduction

INDIVIDUAL TESTS

The Standards Grades 9-12 MathBox contains pages of multiple-choice questions that correlate to the following NCTM Standards:

Standard 1	Mathematics as Problem Solving
Standard 2	Mathematics as Communication
Standard 3	Mathematics as Reasoning
Standard 4	Mathematical Connections
Standard 5	Algebra
Standard 6	Functions
Standard 7	Geometry from a Synthetic Perspective
Standard 8	Geometry from an Algebraic Perspective
Standard 9	Trigonometry
Standard 10	Probability
Standard 11	Statistics
Standard 12	Discrete Mathematics
Standard 13	Mathematical Structure

Answer keys for all questions are provided.

CUMULATIVE TESTS

The Standards Grades 9-12 MathBox includes four cumulative tests that are comprised of 13 questions, one from each standard. Cumulative Test 1 contains questions on an easier level, while questions in tests 2 and 3 are of a medium skill level. Questions in cumulative test 4 are considered to be difficult. Teachers may wish to use these tests for pre and post testing or as a diagnostic tool. Answer keys provide solutions identified by standard so that a teacher can determine where a student might need additional practice.

This MathBox can be used to:

- address the NCTM Standards
- review basic skills
- pinpoint areas of difficulty
- provide enrichment
- offer variety in homework or in-class assignments

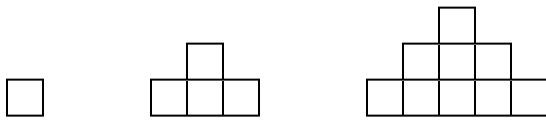
Other titles available in this series are:

Standards 3-4 MathBox
Standards 5-6 MathBox
Standards 7-8 MathBox

The questions in this MathBox are a subset of the questions that are available in the Standards Level 3 TestBank.

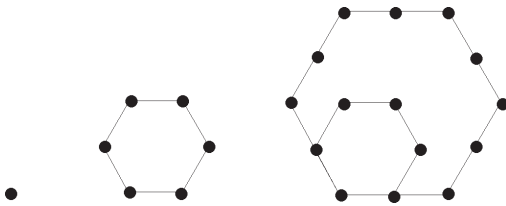
Circle the letter of the correct answer.

1 How many squares are in the ninth figure?



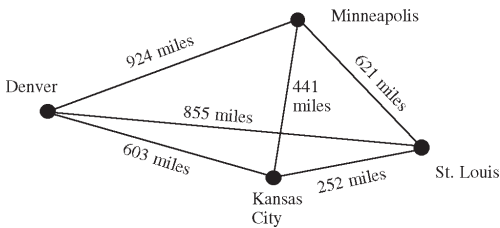
- A** 9 **B** 64
C 81 **D** 100

2 What is the sixth hexagonal number?



- A** 91 **B** 66
C 45 **D** 28

3 Tours begin in Kansas City. How many miles is the shortest circle tour of these four cities?



- A** 2,169 miles **B** 2,400 miles
C 2,472 miles **D** 2,520 miles

4 The equation $y = x^2$ is on a test. You must find the solution(s) for x that will result in an answer of $y = 72$.

What should you do to solve the problem?

- A** Find the cube root of 72.
B Find the inverse of 72.
C Find the square root of 72.
D Find 72^2 .

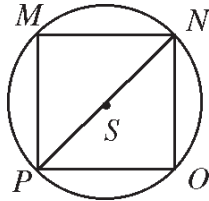
5 The Lion Cubettes' Club and the Explorers' Club worked together during the weekend and collected bottles and cans worth \$576. One club collected cans worth \$112 the previous weekend. They plan to donate this money to a charity.

Which question can be answered based on this data?

- A** How much money did the Lion Cubettes' Club collect?
B How much money did the Explorers' Club collect?
C What was the largest contribution?
D What is the total amount of money they have to donate?

Circle the letter of the correct answer.

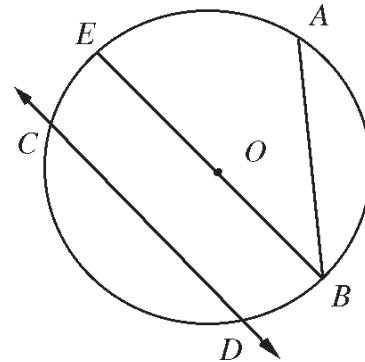
- 11** Square $MNOP$ is inscribed in circle S .
What type of triangle is $\triangle NOP$?



- A** a 45° - 45° - 90° \triangle
- B** a 30° - 60° - 90° \triangle
- C** an equilateral \triangle
- D** a scalene \triangle
- 12** Which condition is NOT a property of parallelograms?
- A** Both pairs of opposite sides are parallel.
- B** Both pairs of opposite angles are supplementary.
- C** The diagonals bisect each other.
- D** Both pairs of opposite sides are congruent.
- 13** Which shape is NEVER a parallelogram?
- A** rhombus **B** rectangle
- C** trapezoid **D** quadrilateral

- 14** If two figures are similar,
- A** their areas are equal
- B** they are congruent
- C** their corresponding parts are proportional
- D** their perimeters are equal
- 15** Which does NOT represent a possible intersection of two circles?
- A** 0 points **B** 1 point
- C** 2 points **D** 3 points

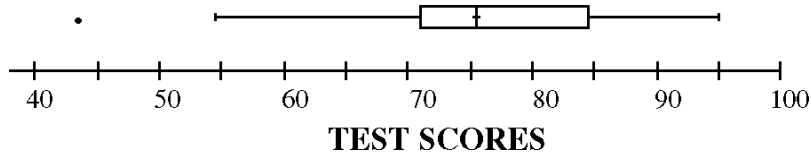
- 16** Which is the diameter in the figure?



- A** \overline{CD} **B** \overline{AB}
- C** \overline{EB} **D** \overline{OB}

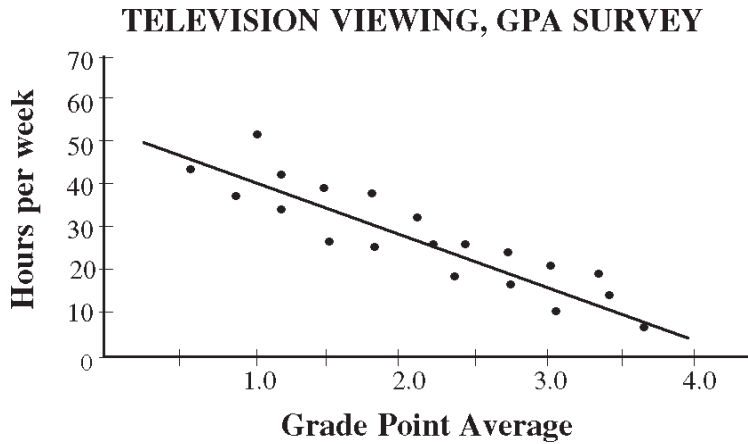
Circle the letter of the correct answer.

11 Which score is an outlier?



- A** 42 **B** 55
C 75.5 **D** 95

12 Use the information in the graph. How many hours per week does a person with a grade point average of 2.75 watch television?



- A** 20 **B** 25
C 30 **D** 33

13 The heights of the five starting basketball players are: 70 inches, 73 inches, 76 inches, 78 inches, and 78 inches. Calculate the average (mean) height.

- A** 8 inches **B** 75 inches
C 76 inches **D** 78 inches

Circle the letter of the correct answer.

14 What is the 5th term in this sequence?

$$a_1 = 4, a_2 = 4, a_n = a_{n-2} + a_{n-1}, n \geq 3$$

- A** 12 **B** 20
C 32 **D** 52

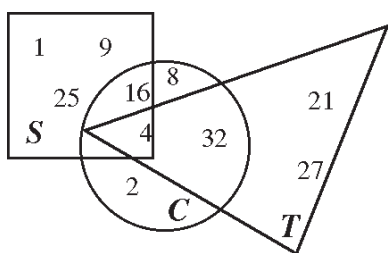
15 What is the sum of the first twenty-two odd numbers?

- A** 396 **B** 404
C 441 **D** 484

16 Which statement is always TRUE?
 (A = set A , U = universal set)

- A** $A \cap \bar{A} = \emptyset$ **B** $A \cup \bar{A} = A$
C $A \cup U = A$ **D** $A \cap U = \bar{A}$

17 $(S \cap C) \cup T =$



- A** {4, 16, 21, 27, 32}
B {4, 21, 27, 32}
C {4, 32}
D {2, 4, 8, 32}

18 A baseball player hits fair one of every three times he bats. How many hits should he get in his next 15 times at bat?

- A** 3 **B** 5
C 10 **D** 15

19 Add.

$$\begin{bmatrix} 4 & -2 \\ 7 & 5 \end{bmatrix} + \begin{bmatrix} -4 & 5 \\ 3 & 5 \end{bmatrix}$$

- A** $\begin{bmatrix} 8 & -7 \\ 4 & 0 \end{bmatrix}$ **B** $\begin{bmatrix} 0 & 3 \\ 4 & 10 \end{bmatrix}$
C $\begin{bmatrix} 0 & 1 \\ 12 & 10 \end{bmatrix}$ **D** $\begin{bmatrix} 0 & 3 \\ 10 & 10 \end{bmatrix}$

20 Which pair of matrices can be multiplied?

- A** $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} \bullet \begin{bmatrix} 4 \\ 5 \\ 6 \end{bmatrix}$
B $\begin{bmatrix} 1 & 4 \\ 3 & 6 \\ 5 & 8 \end{bmatrix} \bullet [5 \ 5 \ 5]$
C $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \bullet \begin{bmatrix} 3 & 4 & 5 \\ 5 & 4 & 3 \end{bmatrix}$
D $\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix} \bullet \begin{bmatrix} 6 & 7 & 8 \\ 9 & 8 & 7 \end{bmatrix}$

