Advanced 1 Mathematics

STECK-VAUGHN

TEST BEST®

Stanford

Tenth Edition

Mathematics Problem Solving

DIRECTIONS ►

Read each question or problem carefully. Then answer the question or work the problem. Mark the space for your answer.

SAMPLE A

Les weighed the items in his backpack. He found the CDs, notebooks, and papers made up 25% of the weight. Which number is *equivalent* to 25%?

A 2.5

B 0.25

C 0.025

D 0.0025

SAMPLE B

Josie is working a puzzle in the newspaper. The puzzle shows this number pattern.

1, 4, 7, 10, 13, ?

What is the next number in the pattern?

A 16

B 18

C 19

D 21

1

The table shows the lengths of four trails in a park.

Trail Lengths

Trail	Length (in miles)
Wildflower	$\frac{1}{3}$
Waterfall	$1\frac{1}{2}$
Shade	1.1
Oak	0.7

Which list shows the trail lengths in order from *least* to *greatest*?

A $\frac{1}{3}$, 0.7, 1.1, $1\frac{1}{2}$

B $\frac{1}{3}$, 1.1, 0.7, $1\frac{1}{2}$

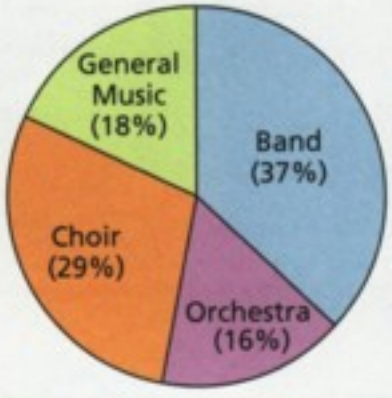
C 0.7, $1\frac{1}{2}$, $\frac{1}{3}$, 1.1

D 0.7, $\frac{1}{3}$, $1\frac{1}{2}$, 1.1

23

Seventh graders at Bucklodge Middle School must take a music class. The circle graph shows the percentage of students who take each type of music class.

Music Class Choices



If there are 300 seventh graders at Bucklodge Middle School, how many chose choir as their music class?

A 29
B 56
C 87
D 94

24

Kendra is getting ready to go out with friends. Her outfit choices include a black or green shirt, a skirt or a pair of jeans, and either sandals, tennis shoes, or boots.

From how many different combinations of one top, one bottom, and one pair of shoes can Kendra choose her outfit?

A 7
B 9
C 10
D 12

25

In Anchorage, Alaska, the daily low temperatures over a 5-day period were 26°F, 28°F, 26°F, 27°F, and 31°F. What is the median of these temperatures?

A 26°F
B 27°F
C 28°F
D 31°F

Number Sense and Operations

Represent Numbers

The same number can be represented in words, as a decimal, as a fraction, and as a percent. For example, $\frac{1}{4}$, 0.25, and 25% all represent one-quarter.

You can convert from one form of a number to another. The tables show the steps to convert a number between 0 and 1.

Change a Fraction to a Decimal	Change a Fraction to a Percent
Divide the numerator of the fraction by the denominator. Example: Write $\frac{3}{4}$ as a decimal. $\frac{3}{4} = 3 \div 4 = 0.75$	Convert the fraction to a decimal. Multiply the decimal by 100. Example: Write $\frac{3}{4}$ as a percent. $\frac{3}{4} = 0.75 = 75\%$
Change a Decimal to a Fraction	**Change a Decimal to a Percent**
Write the decimal as a fraction with 1 as the denominator. Change to equivalent fraction with no decimal places. Simplify. $0.45 = \frac{0.45}{1} = \frac{0.45 \times 100}{1 \times 100} = \frac{45}{100} = \frac{9}{20}$	Multiply the decimal by 100. This is the same as moving the decimal point two places to the right. Example: Write 0.40 as a percent. $0.40 = 40\%$
Change a Percent to a Fraction	**Change a Percent to a Decimal**
Write a fraction with the percent in the numerator and a denominator of 100. Simplify. Example: Write 34% as a fraction. $34\% = \frac{34}{100} = \frac{17}{50}$	Divide the percent by 100. Dividing by 100 is the same as moving the decimal point two places to the left. Example: Write 62% as a decimal. $62\% = \frac{62}{100} = 0.62$

HINT

For help on simplifying fractions, see page 33.

Example

Write 0.6 as a fraction and as a percent.

Fraction _____ *Percent* _____

To change the decimal 0.6 to a fraction, convert to an equivalent fraction with no decimals. Simplify. The fraction becomes $\frac{0.6 \cdot 10}{10} = \frac{6}{10}$. Simplify. $\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$

To convert the decimal 0.6 to a percent, multiply the decimal by 100 and add the % sign.

Number Sense and Operations

1

Which of the following is equivalent to 67%?

A	B	C	D
6.7	$\frac{6}{7}$	67.0	$\frac{67}{100}$

2

Emily works in a clothing store. This chart shows Emily's sales as a fraction of the total sales for a four-month period.

Emily's Sales

Period	Fraction of Total Sales
April	$\frac{5}{14}$
May	$\frac{2}{7}$
June	$\frac{1}{4}$
July	$\frac{5}{8}$

Which list shows the fractions of total sales in order from *least* to *greatest*?

A $\frac{5}{14}, \frac{2}{7}, \frac{1}{4}, \frac{5}{8}$

B $\frac{1}{4}, \frac{2}{7}, \frac{5}{8}, \frac{5}{14}$

C $\frac{5}{8}, \frac{5}{14}, \frac{2}{7}, \frac{1}{4}$

D $\frac{1}{4}, \frac{2}{7}, \frac{5}{14}, \frac{5}{8}$

3

In the figure below, all rectangles are the same size.

Approximately what percent of the figure is shaded?

A	B	C	D
43%	47%	50%	57%

4

The table shows the percentage of sports cars painted in the five most popular sports car colors.

Most Popular Sports Car Colors

Color	Percentage
Blue	12.9%
Silver	24.6%
White	8.8%
Black	14.3%
Red	6.9%

About what percentage of sports cars are painted in the three most popular colors?

A	B	C	D
50%	52%	53%	68%

25

The values of x and y shown in the table form a pattern.

x	y
1	6
2	?
3	18
4	24

What is the value of y when x is 2?

10	12	14	16
A	**B**	**C**	**D**

26

Earl's father is nine years older than twice Earl's age. Earl is 13 years old. Which equation could be used to determine Earl's father's age, F?

A $F = (2 + 13) + 9$

B $F = 2(13) + 9$

C $13 = 2F + 9$

D $13 = 2(F + 9)$

27

What is the value of $\frac{x}{y}$ if $x = 36$ and $y = 4$?

9	32	40	144
A	**B**	**C**	**D**

28

x	y
$^{-}3$	$^{-}14$
0	$^{-}5$
1	$^{-}2$
4	7

Which equation is true for all the pairs of values for x and y given in the table?

A $y = 2 \cdot x - 5$

B $y = x + 3$

C $y = 2 \cdot x$

D $y = 3 \cdot x - 5$