# Math Concepts and Estimation

## Lesson 8a Math Concepts

**Sample A** Which is a reasonable estimate of the height of a regular door?
A  2 meters
B  3 feet
C  4 yards
D  5 centimeters

**Sample B** What number is between 654 and 667?
J  653
K  676
L  656
M  672

**TIPS**
- Look carefully at the numbers and figures for each problem.
- Read the question, look at the answer choices, then read the problem again. This will help you find the answer.

**1** The numbers in the tables below are related by the same rule. What number is missing in the second table?
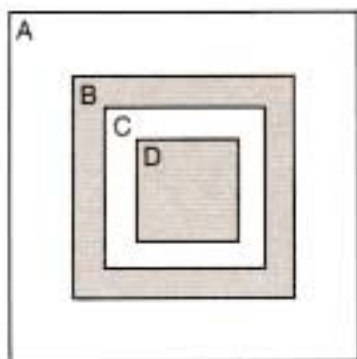
| Table 1 | 0 | 1 | 2 | 2 | 4 | 8 | 9 |
|---|---|---|---|---|---|---|---|
| Table 2 | 0 | 4 | 8 | 8 | 16 | 32 | ? |

A  33
B  35
C  36
D  38

**2** A fly is circling over the target below. On which part is it most likely to land?



J  A
K  C
L  B
M  D

**3** Which figure below is a parallelogram?
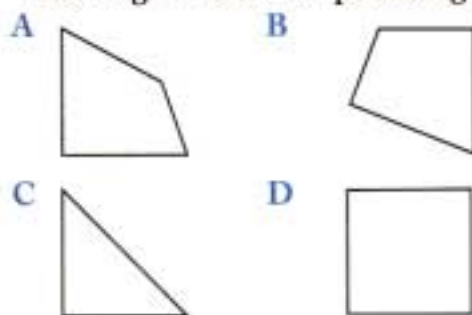


**4** In which figure is angle *ABC* exactly 90°?

Answer rows   A ⒶⒷⒸⒹ   1 ⒶⒷⒸⒹ   3 ⒶⒷⒸⒹ
              B ⒿⓀⓁⓂ   2 ⒿⓀⓁⓂ   4 ⒿⓀⓁⓂ

GO
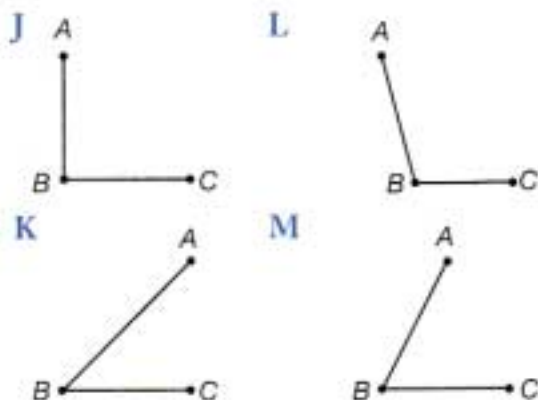
**5** Which is the value of $a$ if $\frac{12}{a} = 3$?

A  2  C  4
B  3  D  6

**6** Which numeral has the same value as $\frac{21}{5}$?

J  4  L  $4\frac{1}{2}$

K  $4\frac{1}{5}$  M  $5\frac{1}{5}$

**7** What should replace the _ to make the number sentence true?

$$(9 + \_) + 1 = (1 + 4) + 9$$

A  1
B  2
C  3
D  4

**8** What should replace the △ in the multiplication problem on the right?

J  5
K  6
L  8
M  9

```
   145
×   41
  145
 5 △ 0
5 □ 45
```

**9** Which is the greatest common factor of 21 and 35?

A  3  C  7
B  6  D  9

**10** Which is another way of writing fourteen hundredths?

J  0.014
K  0.14
L  1.4
M  14

**11** Which set of numbers has the greatest average (mean)?

A  {1, 2, 9}  C  {2, 5, 9}
B  {2, 4, 8}  D  {5, 7, 9}

**12** The figures below are congruent. Which pair of parts is identical?
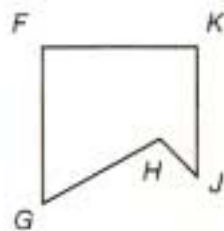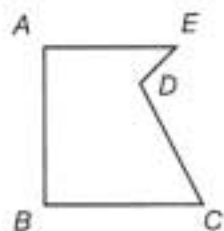
J  DE and HJ  L  BC and GH
K  AE and GH  M  CD and KJ

GO ▶

**13** Which figure is missing in this pattern?

_(pentagon) ___ (heptagon) (octagon)_

A ◯    C ⯃(octagon)

B ▢    D ⬡(hexagon)

**14** The best unit for measuring the number of people in New York City is

J    tens of people.
K    hundreds of people.
L    thousands of people.
M    millions of people.

**15** What should replace the △ to make the number sentence true?
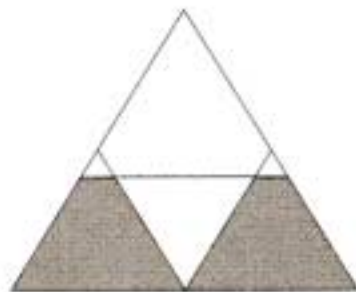
$$(2 + 9) \times \triangle < 43$$

A   3
B   4
C   5
D   6

**16** Which of the following statements is true?

J   $\frac{1}{8} > \frac{1}{7}$

K   $\frac{1}{3} < \frac{1}{5}$

L   $\frac{1}{8} < \frac{1}{4}$

M   $\frac{1}{5} > \frac{1}{4}$

**17** About what fraction of the figure is shaded?

A   Less than $\frac{1}{4}$

B   Between $\frac{1}{4}$ and $\frac{1}{2}$

C   Between $\frac{1}{2}$ and $\frac{3}{4}$

D   More than $\frac{3}{4}$

**18** How should the numeral 489.231 be written if it is rounded to the nearest hundredth?

J   490
K   489
L   489.2
M   489.23

**STOP**

# Math Concepts and Estimation

## Lesson 8b Math Concepts

**Directions:** Read each mathematics problem. Choose the answer that is better than the others.

**Sample A** Which fraction is not equal to 0.25?

A $\frac{1}{2}$

B $\frac{1}{4}$

C $\frac{2}{8}$

D $\frac{3}{12}$

**Sample B** If c is a positive number, what should replace the □ to make the equation true?

$$c \times 1 = \square$$

J 0

K 1

L c

M d

**TIPS**

• Sometimes you can solve a problem by thinking. You don't have to compute to find the answer.

**1** Roy was playing with a six-sided game block. The first time he rolled a 3. What is the chance that he also rolled a 3 the second time?

A $\frac{1}{5}$

B $\frac{5}{6}$

C $\frac{1}{6}$

D $\frac{1}{12}$

**2** Which is the correct solution to
$$0.7 \times \square = 0.42$$

J 0.06

K 0.6

L 6

M 60

**3** The numbers in the table below are related to each other by the same rule. What number is missing in the second row?

| Row 1 | 1 | 5 | 9 | 14 | 18 |
|---|---|---|---|---|---|
| Row 2 | 24 | 28 | □ | 37 | 41 |

A 14

B 32

C 34

D 45

**4** When $a = 5$ and $b = 7$, which of these is the value of $3a + 6b$?

J 21

K 40

L 57

M 63

**GO**

Answer rows
A ⒶⒷⒸⒹ  1 ⒶⒷⒸⒹ  3 ⒶⒷⒸⒹ
B ⒿⓀⓁⓂ  2 ⒿⓀⓁⓂ  4 ⒿⓀⓁⓂ

**5** Which solid figure could be formed using all the pieces at the right?



- A  A cylinder
- B  A cube
- C  A pyramid
- D  A cone

**6** The set of numbers $\{2, 4, 9, 16, 25, 36, 49, 64, 81\}$ can be described as a set of
- J  prime numbers.
- K  even numbers.
- L  squares of numbers.
- M  factors of 160.

**7** If $60 \div s = 15$, what is the value of $15 \times s$?
- A  $s$
- B  4
- C  15
- D  60

**8** If the product of two whole numbers is 25, which of the following best describes the numbers?
- J  Both are odd.
- K  Both are even.
- L  One is even and one is odd.
- M  There is not enough information to tell.

**9** Camille has 4 yellow buttons, 3 brown buttons, 3 green buttons, and 2 blue buttons in a jar. If she takes buttons out of the jar without looking, at most how many buttons will she have to take before she gets 2 buttons of the same color?
- A  4
- B  5
- C  6
- D  12

**10** If $c$ is a positive number, what should replace the $\square$ to make the equation true?
$$\frac{c}{1} = \square$$
- J  $c$
- K  $d$
- L  0
- M  1

**11** Which number is between 3,861 and 4,259?
- A  3,816
- B  3,859
- C  4,195
- D  4,295

**12** Karen ran the first mile of a race in 9 minutes and the second mile in 11 minutes. What was her average speed for the two miles?
- J  2 minutes
- K  5 minutes
- L  10 minutes
- M  20 minutes

**13** If the 4 in 4,971 is changed to an 8, how is the value of the number changed?
- A  It increases by 4.
- B  It increases by 4,000.
- C  It increases by 8.
- D  It increases by 8,000.

**14** If you add two odd numbers together, what is true about their sum?
- J  It must be odd.
- K  It must be even.
- L  It may be even or odd.
- M  It will be a prime number.

**STOP**