

1 place smaller  
 $\leftarrow 10\%$   
 2 places smaller  
 $\leftarrow 1\%$   
 $5\%$   $\frac{1}{2}$  of  $10\%$

1

85 percent of the senior class at a high school will be graduating. If the class has 540 students, how many students will graduate?

- (A)  448
- (B)  452
- (C)  453
- (D)  455
- (E)  459

540  
 $\frac{3}{5} 4 = 10\%$        $\approx \sqrt{54} \approx 25 = 27$   
 $\frac{432}{27} \rightarrow 80\%$   
 $\frac{459}{27}$

2

In a theater, there are 4,500 lower-level seats and 2,000 upper-level seats. What is the ratio of lower-level seats to total seats?

- (A)  4:9
- (B)  4:13
- (C)  9:13
- (D)  9:4
- (E)  13:9

3

In a class of 20 students, how many conversations must be had so that every student talks to every other student in the class?

- (A)  40
- (B)  190
- (C)  380
- (D)  760
- (E)  6840

4

CONVERSIONS      8 ounces =  $\frac{1}{2}$  pound

Convert 8 pounds, 8 ounces to kilograms to the nearest tenth of a kilogram.

16 ounces in 1 pound

2.2 pounds = 1 kg

- (A)  3.9 kilograms
- (B)  4.1 kilograms
- (C)  17.6 kilograms
- (D)  18.7 kilograms
- (E)  19.36 kilograms

8.5 lb  
 $2.2 \overline{) 8.5}$   
 $2.2 \overline{) 85}$

5

If an employee who makes \$37,500 per year receives a 5.5% raise, what is the employee's new salary?

- (A)  \$35,437.50
- (B)  \$35,625.00
- (C)  \$39,375.00
- (D)  \$39,562.50
- (E)  \$58,125.00

Handwritten calculations for Question 5:

$$37,500 \cdot 1\% = \frac{4375}{6}$$

$$\frac{37,500}{2225} = 16\%$$

$$\frac{37,500}{0.055} = 187,500$$

$$\frac{187,500}{6} = 31,250$$

$$37,500 + 31,250 = 68,750$$

Final result:  $68,750 - 29,187.50 = 39,562.50$

6

Miguel works at a car dealership and is paid a 2 percent commission on every car he sells. If he sells one car for \$15,000 and two cars for \$12,900 each, how much will he be paid in commissions?

- (A)  \$300
- (B)  \$558
- (C)  \$816
- (D)  \$5,580
- (E)  \$8,160

Handwritten calculations for Question 6:

$$15,000 + 12,900 + 12,900 = 40,800$$

$$40,800 \cdot 2\% = 816$$

7

A teacher has 50 notebooks to hand out to students. If she has 16 students in her class, and each student receives 2 notebooks, how many notebooks will she have left over?

- (A)  2
- (B)  16
- (C)  18
- (D)  32
- (E)  34

8

40% of what number is equal to 17?

- (A)  2.35
- (B)  6.8
- (C)  42.5
- (D)  235
- (E)  680

Handwritten calculations for Question 8:

$$50\% = \frac{1}{2} \quad \% \cdot \text{retail price} = \text{discount}$$

$$40\% \cdot \text{number} = 17$$

$$\frac{40\%}{40} \cdot 17 = 17 \cdot \frac{100}{40} = 42.5$$

9

During a baseball team's practice, players spent 1 hour at batting practice, 30 minutes catching fly balls, and 15 minutes running sprints. What percentage of the practice did the players spend running sprints?

- (A)  14.3
- (B)  16.7
- (C)  28.6
- (D)  33.3
- (E)  57.1

10

Michael is making cupcakes. He plans to give  $\frac{1}{2}$  of the cupcakes to a friend and  $\frac{1}{3}$  of the cupcakes to his coworkers. If he makes 48 cupcakes, how many will he have left over?

- (A)  8
- (B)  10
- (C)  12
- (D)  16
- (E)  24

11

There are 380 female students in a class. Male students make up 60% of the class. What is the total number of students in the class?

- (A)  380
- (B)  570
- (C)  633
- (D)  950
- (E)  2280

12

Students board a bus at 7:45 a.m. and arrive at school at 8:20 a.m. How long are the students on the bus?

- (A)  30 minutes
- (B)  35 minutes
- (C)  45 minutes
- (D)  50 minutes
- (E)  65 minutes

13

Cone A is similar to cone B with a scale factor of 3:4. If the volume of cone A is  $54\pi$ , what is the volume of cone B?

- (A)   $72\pi$
- (B)   $128\pi$
- (C)   $162\pi$
- (D)   $216\pi$
- (E)   $378\pi$

14

An ice chest contains 24 sodas, some regular and some diet. The ratio of diet soda to regular soda is 1:3. How many regular sodas are there in the ice chest?

- (A)  1
- (B)  4
- (C)  6
- (D)  18
- (E)  24

15

Three people have winning lottery tickets and will split the \$500,000 prize between them in a ratio of 3:2:1. How much money will go to the person receiving the most money?

- (A)  \$83,333
- (B)  \$166,666
- (C)  \$250,000
- (D)  \$333,333
- (E)  \$375,000

16

Kim and Chris are writing a book together. Kim wrote twice as many pages as Chris, and together they wrote 240 pages. How many pages did Chris write?

- (A)  80
- (B)  100
- (C)  120
- (D)  160
- (E)  240

17

If there are 10 millimeters in 1 centimeter, how many millimeters are in 150 centimeters?

- (A)  1.5 mm
- (B)  15 mm
- (C)  150 mm
- (D)  1500 mm
- (E)  15,000 mm

18

Noah and Jennifer have a total of \$10.00 to spend on lunch. If each buys his or her own order of french fries and a soda, how many orders of chicken strips can they share?

**Menu**

*Item Price*  
 Hamburger \$4.00  
 Chicken Strips \$4.00  
 Onion Rings \$3.00  
 French Fries \$2.00  
 Soda \$1.00  
 Shake \$1.00

- (A)  0  
 (B)  1  
 (C)  2  
 (D)  3  
 (E)  4

19

A store owner purchased 30 refrigerators at a price of \$850 each. He sold them at a 15 percent markup over the price he paid. If he sold all 30 refrigerators, what was his total profit?

- (A)  \$127.50  
 (B)  \$977.50  
 (C)  \$3,425  
 (D)  \$3,825  
 (E)  \$4,325

20

Out of 1560 students at Ward Middle School, 15% want to take French. Which expression represents how many students want to take French?

- (A)   $1560 \div 15$   
 (B)   $1560 \times 15$   
 (C)   $1560 \times 0.15$   
 (D)   $1560 \div 0.15$   
 (E)   $1560 \times 1.5$

21

The number of chairs in the front row of a movie theater is 14. Each subsequent row contains 2 more seats than the row in front of it. If the theater has 25 rows, what is the total number of seats in the theater?

- (A)  336  
 (B)  350  
 (C)  888  
 (D)  950  
 (E)  1014

22

The mean of 13 numbers is 30. The mean of 8 of these numbers is 42. What is the mean of the other 5 numbers?

- (A)  5.5
- (B)  10.8
- (C)  16.4
- (D)  21.2
- (E)  30.0

23

If a student answers 42 out of 48 questions correctly on a quiz, what percentage of questions did she answer correctly?

- (A)  82.5%
- (B)  85%
- (C)  86%
- (D)  87.5%
- (E)  90%

24

A map is drawn with a scale of 1 inch = 25 miles. If two cities are 115 miles apart, how far apart will they be on the map?

- (A)  2.6 inches
- (B)  2.9 inches
- (C)  3.2 inches
- (D)  4.6 inches
- (E)  4.9 inches

25. Two ships are 1550 miles apart and sailing toward each other. One sails at the rate of 85 miles per day and the other at the rate of 65 miles per day. How far apart will they be at the end of 9 days?

- (A) 100 miles
- (B) 150 miles
- (C) 175 miles
- (D) 200 miles
- (E) 225 miles