ACT Prep: Problems With Percentages

1. This year, 75% of the graduating class of Harriet Tubman High School had taken at least 8 math courses. Of the remaining class members, 60% had taken 6 or 7 math courses. What percent of the graduating class had taken fewer than 6 math courses?

   F.   0%
   G. 10%
   H. 15%
   J.   30%
   K. 45%

2. A certain alloy part for the space shuttle is 25% manganese, 15% titanium, 40% aluminum, and the rest molybdenum, by weight. If the part weighs 3,500 kilograms, it would contain how many kilograms of molybdenum?

   A.   20.0
   B.   700.0
   C.   2,800.0
   D.   3,420.0
   E.   3,499.2

3. Gravity on the Moon is such that an object weighs only 16% of what it would weigh on Earth. If Tom weighs 150 pounds on Earth, how many points would he weigh on the Moon?

   F.   24
   G.   32
   H.   126
   J.   178.6
   K.   937.5

4. Which of the following represents $\frac{1}{10}$ of 1% ?

   A. 10.0
   B.   1.0
   C.   0.1
   D.   0.01
   E.   0.001

5. In a certain rural school district, exactly 60% of the students live on farms. If there are 7,345 students in the district, how many do NOT live on farms?

    F.   294
    G.   447
    H.   2,938
    J.   4,407
    K.   6,898

6. At a certain company, 240 of the employees belong to a union while the other 160 do not. What percent of the company's workers are nonunion?

    F.   25%
    G. $33\frac{1}{3}\%$
    H.   40%
    J.   60%
    K. $66\frac{2}{3}\%$

7. Joe's weekly salary is $150.00. If 15% must be deducted for taxes, what will be his take-home pay?

    A. $100.00
    B. $115.00
    C. $127.50
    D. $130.43
    E. $135.00

8. In a group of 64 students, 40 are freshmen. What percentage of the group are freshmen?

    A.   1.6%
    B.   16%
    C.   25%
    D.   40%
    E.   62.5%

9. Two weeks before the election, the school board commissioned a poll of 300 eligible voters to see how public opinion stood on the school tax levy. They thought that if 60% of these persons were in favor, that would signal a reasonably sure passage of the levy. The next week, the local paper reported that the results of the poll fell 15 favorable responses short of this mark. How many of the people polled responded in favor of the school tax levy?

    A.   135
    B.   165
    C.   180
    D.   185
    E.   195

10. If 40% of *x* equals 80, then *x* = ?

    A.   2
    B.   32
    C.   200
    D.   2,000
    E.   3,200

11. You are standing in line at the cash register to pay for a bracelet priced at $15.99. A sales tax of 8% of the $15.99 will be added (rounded to the nearest cent) to the price of the bracelet. You have 20 one-dollar bills, but how much will you need in coins if you want to have exact change ready?

    A.   7¢
    B.   8¢
    C.   19¢
    D.   27¢
    E.   63¢

12. Vivian made 63 throws out of 89 attempts during the basketball season. What percentage, to the nearest percent, of her free throws did she make during this season?

    A.   41%
    B.   63%
    C.   71%
    D.   89%
    E.   98%

13. A preelection survey indicated that the incumbent would receive 50% of the vote while the challenger would receive 40% of the vote. Write-in candidates would receive the remaining 10% of the vote. The survey predictions proved to be accurate, and the incumbent won, receiving about 1,000 votes. About how many votes did the challenger receive?

    F.   40
    G. 200
    H. 400
    J.   500
    K. 800

14. The length of one side of a square is increased by 25%. By what percent would the length of the adjacent side have to be decreased so that the area of the new figure (which will be rectangular) is the same as the area of the original square?

    F. 20%
    G. 25%
    H. 50%
    J. 75%
    K. 80%

15. to keep up with rising expenses, a motel manager needs to raise the $40.00 room rate by 22%. What will be the new rate?

    F. $40.22
    G. $42.20
    H. $48.00
    J. $48.80
    K. $62.00

Kaylee is planning to purchase a car. She will need to borrow some of the money and has a chart, shown below, to use to approximate her monthly payment. The chart gives the approximate monthly payment per $1,000 borrowed.

Monthly payment per $1,000 borrowed for various annual rates and various numbers of payments			
Annual interest rate	Number of monthly payments		
	36	48	60
5%	$29.97	$23.03	$18.87
8%	$31.34	$24.41	$20.28
10%	$32.27	$25.36	$21.24
12%	$33.22	$26.34	$22.24

16. Kaylee found a used car she is thinking about purchasing. The list price is $8,795. She calculates that she will need to borrow $6,500. Approximately what would her monthly payment be if she borrowed the money for 36 months at an annual interest rate of 10% ?

    F. $164.84
    G. $171.21
    H. $209.76
    J. $234.72
    K. 283.81

17. A local dealership is having an end-of-the-model-year clearance sale and is offering 5% annual interest on new-car loans for 36, 48, or 60 months. The maximum amount Kaylee can budget for her monthly car payment is $300. Of the following loan amounts, which one is the maximum Kaylee can borrow at 5% annual interest and stay within her budget?

    A. $10,000
    B. $13,000
    C. $14,000
    D. $15,000
    E. $20,000

18. Another dealership is offering 5-year loans with a 9% annual interest rate. Kaylee uses her chart to estimate the payment per $1,000 borrowed. Of the following, which is most likely the monthly payment per $1,000 borrowed?

    F. $20.52
    G. $20.76
    H. $20.85
    J. $21.00
    K. $21.74

19. What is the difference when 1% of 90 is subtracted from the product of 0.1 and 90 ?

    A. 8.991
    B. 8.91
    C. 8.1
    D. 0.09
    E. 0