ACT Pre-TEST: 11th Graders

Since there are 10 questions you get 10 minutes. Do your best! Place the CAPITAL LETTER in the box provided.

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MATHEMATICS TEST
60 Minutes—60 Questions

DIRECTIONS: Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

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1. Jorge's current hourly wage for working at Denti Smiles is $12.00. Jorge was told that at the beginning of next month, his new hourly wage will be an increase of 6% of his current hourly wage. What will be Jorge's new hourly wage?

   A. $12.06
   B. $12.60
   C. $12.72
   D. $18.00
   E. $19.20

2. The first term is 1 in geometric sequence 1, -3, 9, -27, … . What is the SEVENTH term of the geometric sequence?

   F. -243
   G. -30
   H. 81
   J. 189
   K. 729

3. Students studying motion observed a cart rolling at a constant rate along a straight line. The table below gives the distance, d feet, the cart was from a reference point at 1-second intervals from t = 0 seconds to t = 5 seconds.
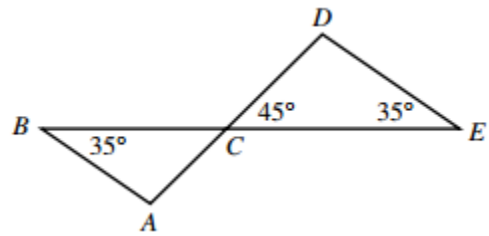
t	0	1	2	3	4	5
d	14	20	26	32	38	44

Which of the following equations represents this relationship between d and t?

A. d = t + 14
B. d = 6t + 8
C. d = 6t + 14
D. d = 14t + 6
E. d = 34t

4. In the figure below, C is the intersection of $\overline{AD}$ and $\overline{BE}$. If it can be determined, what is the measure of ∠BAC?

F. 80°
G. 100°
H. 110°
J. 115°
K. Cannot be determined from the given information.

5. Antwan drew the circle graph below describing his time spent at school in 1 day. His teacher said that the numbers of hours listed were correct, but that the central angle measures for the sectors were not correct. What should be the central angle measure for the Core subjects sector?

A. 72°
B. 80°
C. 160°
D. 200°
E. 288°
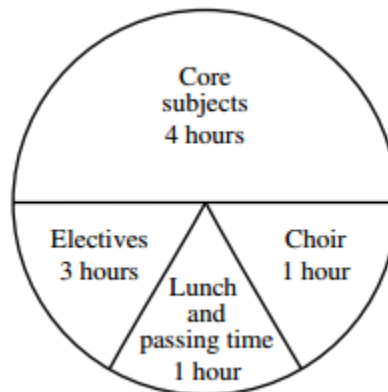
6. A car accelerated from 88 feet per second (fps) to 220 fps in exactly 3 seconds. Assuming the acceleration was constant, what was the car's acceleration, in feet per second, from 88 fps to 220 fps?

F. $\frac{1}{44}$

G. $29\frac{1}{3}$

H. 44

J. $75\frac{1}{3}$

K. $102\frac{2}{3}$

7. In a plane, the distinct lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at A, where A is between C and D. The measure of $\angle$BAC is 47°. What is the measure of $\angle$BAD?

A. 43°

B. 47°

C. 94°

D. 133°

E. 137°

8. To get a driver's license, an applicant must pass a written test and a driving test. Past records show that 80% of the applicants pass the written test and 60% of those who have passed the written test pass the driving test. Based on these figures, how many applicants in a random group of 1,000 applicants would you expect to get driver's licenses?

A. 200

B. 480

C. 600

D. 750

E. 800

9. If a, b, and c are positive integers such that $a^b = x$ and $c^b = y$, then xy = ?

F. ac^b
G. ac^{2b}
H. $(ac)^b$
J. $(ac)^{2b}$
K. $(ac)^{b^2}$

10. Which of the following expressions is equivalent to $\frac{1}{2}y^2(6x + 2y + 12x - 2y)$?

A. $9xy^2$
B. $18xy$
C. $3xy^2 + 12x$
D. $9xy^2 - 2y^3$
E. $3xy^2 + 12x - y^3 - 2y$