COMPASS Mathematics Placement Test Sample Items

(Averages: Means, Medians, and Modes)

1.   What is the average (arithmetic mean) of 8, 7, 7, 5, 3, 2, and 2?

> **A.** $3\frac{4}{7}$
>
> **B.** $4\frac{5}{6}$
>
> **C.** $4\frac{6}{7}$
>
> **D.** 5
>
> **E.** $6\frac{4}{5}$

(Basic Operations with Decimals)

2. Ben is making wooden toys for the next arts and crafts sale. Each toy costs Ben $1.80 to make. If he sells the toys for $3.00 each, how many will he have to sell to make a profit of exactly $36.00 ?

> **A.** 12
> **B.** 20
> **C.** 30
> **D.** 60
> **E.** 108

(Elementary Algebra: Linear Equations in One Variable)

3. A student has earned scores of 87, 81, and 88 on the first 3 of 4 tests. If the student wants an average (arithmetic mean) of exactly 87, what score must she earn on the fourth test?

> **A.** 85
> **B.** 86
> **C.** 87
> **D.** 92
> **E.** 93

(Elementary Algebra: Basic Operations with Polynomials)

4.   Which of the following expressions represents the product of 3 less than twice x and 2 more than the quantity 3 times x ?

> **A.** $-6x^2 + 25x + 6$
> **B.** $6x^2 + 5x + 6$
> **C.** $6x^2 - 5x + 6$
> **D.** $6x^2 - 5x - 6$
> **E.** $6x^2 - 13x - 6$

(Complex Numbers)

5. For $i = \sqrt{-1}$, if $3i(2 + 5i) = x + 6i$, then $x = $?

A. −15
B. 5
C. 5i
D. 15i
E. 27i

(Functions)

6. If $f(4) = 0$ and $f(6) = 6$, which of the following could represent $f(x)$?

A. $\frac{2}{3}x - 4$
B. $x + 2$
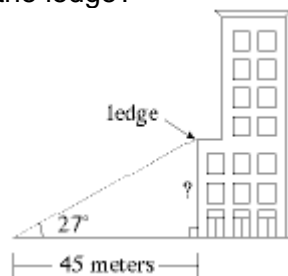C. $x - 4$
D. $\frac{3}{2}x + 6$
E. $3x - 12$

(Trigonometric Functions and Identities)

7. Which of the following is equivalent to $\frac{1 - \cos^2\theta}{\cos^2\theta}$?

A. $\sec^2\theta$
B. $(\csc^2\theta) - 1$
C. $\tan^2\theta$
D. $\sin^2\theta$
E. $-\frac{1}{\sin^2\theta}$

(Right-Triangle Trigonometry)

8. From a point on the ground the angle of elevation to a ledge on a building is 27°, and the distance to the base of the building is 45 meters. How many meters high is the ledge?

>A. $\frac{45}{\sin 27°}$
B. $\frac{45}{\tan 27°}$
C. 45 sin 27°
D. 45 cos 27°
E. 45 tan 27°

Answers:

1. C   2. C   3. D   4. D   5. A   6. E   7. C   8. E