

Palomar College Math Placement Test Study Guide Beginning Algebra

Topic 2: Variable Expressions

1. Evaluate $a^2 - b^2$ when $a = -3$ and $b = -4$
2. Given $x = -1$, $y = -2$ and $z = 8$, find the value of $xyz - 3y$
3. If $x = -5$, what is the value of $\frac{x^2 + x}{x}$?
4. If $m = \frac{1}{2}$, what is the value of $2m^2 - 3m - 4$?
5. A person is considered overweight if their Body Mass Index (BMI) is over 25. BMI can be computed using the following formula, where the weight (WT) is in pounds and the height (HT) is in inches.

$$\text{BMI} = \frac{WT}{HT \times HT} \times 703$$

What is the Body Mass Index of a 5 foot 11 inch man who weighs 175 pounds? Round to the nearest 10th.

6. The following formula can be used to convert temperatures from degrees Fahrenheit (F) to degrees Celsius (C).

$$C = \frac{5}{9}(F - 32)$$

If the high temperature yesterday was 77°F, what was the high temperature in °C?

7. Write a variable expression for “five less than twice a number n”
8. A string 20 inches long is cut into two pieces. If one of the pieces is x inches long, write an expression that represents the length of the other piece.

9. If x pencils cost c cents, then give a general expression for the cost of y pencils, in cents.
10. Max purchased tickets to a movie. If A represents the number of adult's tickets he purchased at \$9.50 each and C represents the number of children's tickets he purchased at \$6 each, write an expression that represents total cost in dollars of Max's ticket purchases.
11. Solve $C = 2\pi r$ for r .
12. Solve for L : $P = 2L + 2W$

Answers:

1. -7
2. 22
3. -4
4. -5
5. The man's BMI is 24.4
6. The high temperature was 25°C.
7. $2n - 5$
8. $(20 - x)$ inches
9. $\frac{cy}{x}$
10. $9.5A + 6C$
11. $r = \frac{C}{2\pi}$
12. $L = \frac{P - 2W}{2}$ or $L = \frac{P}{2} - W$