

## Palomar College Math Placement Test Study Guide

### Intermediate 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.

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

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

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. Let  $x$  represent the smaller of two numbers whose product is 18. Write an expression that represents the larger number.
10. If  $x$  pencils cost  $c$  cents, then give a general expression for the cost of  $y$  pencils, in cents.
11. 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.
12. Solve  $C = 2\pi r$  for  $r$ .
13. 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.  $\frac{18}{x}$
10.  $\frac{cy}{x}$
11.  $9.5A + 6C$
12.  $r = \frac{C}{2\pi}$
13.  $L = \frac{P - 2W}{2}$  or  $L = \frac{P}{2} - W$