

Name \_\_\_\_\_

**Math 7: Substitution into  
Expressions and Formulas**

**Substitute the given values for the variable, then evaluate.  
Please show step-by-step calculations for all questions.**

1. Find the value of  $5n$  when  $n = 5$  \_\_\_\_\_

2. Find the value of  $5n$  when  $n = -7$  \_\_\_\_\_

3. If  $y = -2$ , evaluate  $2y - 5$  \_\_\_\_\_

4. If  $y = -4$ , evaluate  $5y - 2$  \_\_\_\_\_

5. If  $a = -2$  and  $b = -4$ , evaluate  $(3a)(2b)(6)$  \_\_\_\_\_

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6. If  $x = 6$  and  $y = 4$ , evaluate  $\frac{8x+2}{6y+3}$  \_\_\_\_\_

7. If  $x = 2$  and  $y = 3$ , evaluate  $2x^3 - 7y^2$  \_\_\_\_\_

8. If  $x = 3$ , evaluate  $\frac{x^2}{6}$  \_\_\_\_\_

9. Evaluate  $(ab)^2$  when  $a = -2$  and  $b = 3$  \_\_\_\_\_

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10. Evaluate  $2a - b^4 + 9$  when  $a = 5$  and  $b = 2$  \_\_\_\_\_

11. The perimeter of a triangle is defined by the formula  $P = x + y + z$ . Find  $P$  if the lengths of its sides are  $x = 2$  cm,  $y = 5$  cm, and  $z = 6$  cm. \_\_\_\_\_

12. The perimeter of a square with side length  $s$  is given by the formula  $P = 4s$ . If  $s = 10$  cm, find  $P$ . \_\_\_\_\_

13. The area of a square with side  $s$  is given by the formula  $A = s^2$ . Find  $A$  if  $s = 6$  cm. \_\_\_\_\_

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14. The area ( $A$ ) of a rectangle is given by the formula  $A = lw$ . \_\_\_\_\_  
If the length ( $l$ ) is 4 cm and the width ( $w$ ) is 3 cm, find the area.

15. The area of a triangle is defined by the formula  $A = \frac{bh}{2}$ . \_\_\_\_\_  
Find the area if the base ( $b$ ) is 3 cm and the height ( $h$ ) is 9 cm.

16. The area of a rhombus is given by  $A = \frac{1}{2}xy$ . \_\_\_\_\_  
If  $x = 5$  and  $y = 10$ , find  $A$ .

17. The volume of a prism is given by the formula  $V = lwh$ . \_\_\_\_\_  
If  $l = 4$ ,  $w = 2$ , and  $h = 2$ , find the volume.

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18. Simple interest is calculated with the formula  $I = \frac{PRT}{100}$ . \_\_\_\_\_

If  $P = 2000$ ,  $R = 8$ , and  $T = 2$  find the interest.

19. To convert the temperature from Celsius ( $C$ ) to Fahrenheit ( $F$ ) \_\_\_\_\_

you can use the formula  $F = 32 + \frac{9C}{5}$ .

If  $C = 45$ , find the value of  $F$ .

20. To convert the temperature from Fahrenheit ( $F$ ) to Celsius ( $C$ ) \_\_\_\_\_

you can use the formula  $C = \frac{5}{9}(F - 32)$ .

If  $F = 77$ , find the value of  $C$ .

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21. The kinetic energy,  $E$ , of an object in motion is calculated \_\_\_\_\_  
using the following formula,  $E = \frac{mv^2}{2}$ , where  $m$  is the mass of the object in  
kilograms and  $v$  is the object in meters per second.

Find the kinetic energy of an object with a mass of 6 kg traveling at a speed  
of 17 meters per second.

22. The volume of a sphere can be calculated using  $V = \frac{4}{3}\pi r^3$ . \_\_\_\_\_  
If the radius ( $r$ ) of the sphere is 5 cm, calculate the volume.  
Round to the nearest hundredth.