

Simplify:

1. 
$$\frac{\frac{1}{b+c}}{\frac{1}{d}}$$

[1] \_\_\_\_\_

2. 
$$\frac{\frac{a}{s}}{\frac{t}{s+a}}$$

[2] \_\_\_\_\_

3. Solve the system by the substitution method.

$$x = 9y + 2$$

$$8x + y = 162$$

[3] \_\_\_\_\_

4. Solve the system by the substitution method.

$$x = 8y + 8$$

$$7x + y = -1$$

[4] \_\_\_\_\_

5. Solve:  $3g - 3(2g + 3) = 4g + 5$ 

[5] \_\_\_\_\_

6. Write 1320 as a product of prime numbers.

[6] \_\_\_\_\_

7. Determine the prime factorization of 220.

[A]  $2 \cdot 2 \cdot 3 \cdot 5 \cdot 7$  [B]  $2 \cdot 5 \cdot 5 \cdot 10 \cdot 7$  [C]  $2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 11$  [D]  $2 \cdot 2 \cdot 5 \cdot 11$

[7] \_\_\_\_\_

8. Simplify. Write the answer with all positive exponents.  $\frac{x^6 y^5 z^0 (x^4 y^0)^{-3} x^4 y^{-2} (z^{-2})^3}{x(y^{-3})^0 xy^3 x^{-1} (z^{-1})^{-2}}$

[8] \_\_\_\_\_

9. Use six unit multipliers to convert 32,000 cubic inches to cubic meters.

[9] \_\_\_\_\_

10. Add:  $\frac{4}{q-r} + \frac{2}{q}$

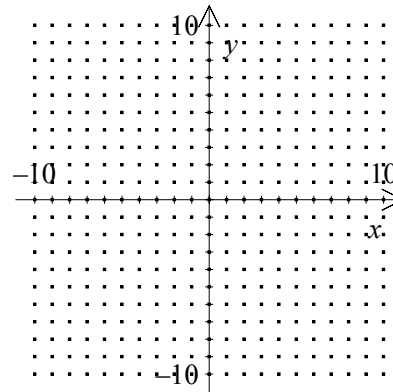
[10] \_\_\_\_\_

11. The average of the first 3 numbers was 27. The average of the next 12 numbers was 37. What was the overall average of the numbers?

[11] \_\_\_\_\_

Graph:

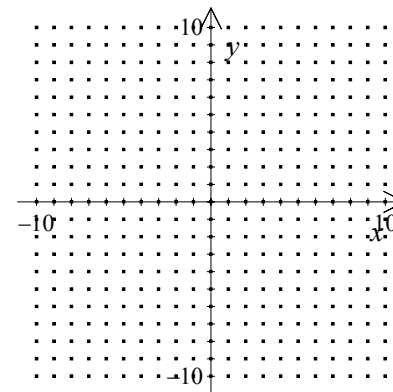
12.  $y = -x - 5$



[12]

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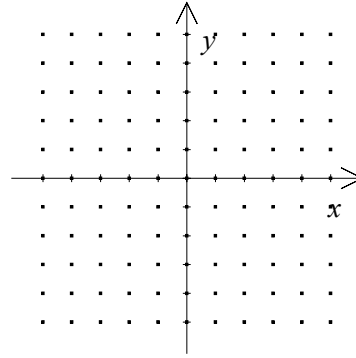
13.  $x = 9$



[13]

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14. Graph the ordered pair  $C(2, -3)$ .



[14] \_\_\_\_\_

Simplify:

15. 
$$\frac{\frac{v}{x}}{\frac{1}{v+w}}$$

[15] \_\_\_\_\_

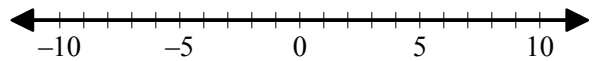
16. 
$$\frac{\frac{f}{w}}{\frac{x}{w+f}}$$

[16] \_\_\_\_\_

17. Multiply:  $(4x + 1)(5x + 8)$

[17] \_\_\_\_\_

18. Graph:  $3 < x \leq 5$



[18] \_\_\_\_\_

19. Simplify by adding like terms. Write the answer with all exponents positive.

$$-\frac{3x^3y^2z^3}{z^{-2}} - \frac{5x^4z^5}{xy^{-2}} - \frac{2x^3yz^4}{y^{-1}z^{-1}} - \frac{x^3y^2z^3}{z^{-2}}$$

[19] \_\_\_\_\_

20. If  $x - 7 = -3$ , what is the value of  $x^3 + 7$ ?

[20] \_\_\_\_\_

21. The ratio of fairies to dwarfs was 16 to 17. If there were 304 fairies, how many dwarfs were there?

[21] \_\_\_\_\_

22. Expand by using the distributive property:  $\frac{x}{z^2} \left( \frac{5y^3}{x} - \frac{x^2}{y^3} \right)$

[22] \_\_\_\_\_

23. Simplify: (a)  $(-5)^{-2}$       (b)  $\frac{1}{-5^{-2}}$

[23] \_\_\_\_\_

24. Divide:  $\frac{6y - 24y^2}{6y}$

[24] \_\_\_\_\_

25. Find a number such that 11 more than three times the number is 128.

[25] \_\_\_\_\_

Bonus!!!

26. Add. Write the answer with all exponents positive.  $x^2y^{-3} + 7z^{-2}$

[26] \_\_\_\_\_