

**Basic Algebra II  
Summer Packet**

Please show all work in the space provided. Do not leave any questions blank. If you cannot complete the entire question please do as much work as you can.

1. Simplify by combining like terms:  $3m^2 + 4n^4 - m^2 - 4n^4$

- a)  $2m^4$                       b)  $4m^4$                       c)  $2m^2$                       d)  $2m^2 + 8m^4$                       1. \_\_\_\_\_

2. Simplify by combining like terms:  $-4mn + 3m + 6mn + 2mn$

- a)  $5m^2n + 2m^2n^2$                       b)  $4mn + 3m$   
c)  $-4mn + 3m + 8mn$                       d)  $7mn$                       2. \_\_\_\_\_

3. Evaluate  $-3m^2 + n$  when  $m = 2, n = -4$ .

- a)  $-16$                       b)  $40$                       c)  $32$                       d)  $-40$                       3. \_\_\_\_\_

4. Simplify  $\frac{4x^5y^3}{6x^7y^2}$

- a)  $2x^{12}y^5$                       b)  $\frac{2y}{3x^2}$                       c)  $\frac{2x^2}{3y}$                       d)  $\frac{x^2}{2y}$                       4. \_\_\_\_\_

5. Simplify:  $(4x^2)(2x^5)$

- a)  $6x^7$                       b)  $8x^{10}$                       c)  $6x^{10}$                       d)  $8x^7$                       5. \_\_\_\_\_

6. Simplify:  $(2ab)(-4a^4b)$

- a)  $-2a^4b^2$                       b)  $-8a^4b^2$                       c)  $-8a^5b$                       d)  $-8a^5b^2$                       6. \_\_\_\_\_

7. Distribute:  $4x(x+7)$

- a)  $4x^2 + 28x$                       b)  $4x^2 + 7$                       c)  $5x + 7$                       d)  $5x + 28x$                       7. \_\_\_\_\_

8. Distribute:  $6n^3(n^2 - 3n + 2)$

- a)  $6n^5 - 3n + 2$                       b)  $6n^5 - 18n^3 + 2$   
c)  $6n^6 - 18n^4 + 12n^3$                       d)  $6n^5 - 18n^4 + 12n^3$                       8. \_\_\_\_\_

9. Multiply:  $(x+3)(x-1)$

- a)  $x^2 - 3$                       b)  $x^2 + 2x - 3$   
c)  $x^2 + 4x - 3$                       d)  $x^2 + 2x + 3$                       9. \_\_\_\_\_

10. Multiply:  $(3x+4)(2x+3)$

- a)  $6x^2 + 17x + 12$                       b)  $6x^2 + 14x + 7$   
c)  $5x^2 + 17x + 7$                       d)  $5x + 12$                       10. \_\_\_\_\_

11. Write the algebraic expression for "the product of a number and four".

- a)  $\frac{n}{4}$                       b)  $4n$                       c)  $n + 4$                       d)  $n - 4$                       11. \_\_\_\_\_

12. Write the algebraic expression for "two times the sum of a number and five".

- a)  $2(n+5)$                       b)  $2n+5$                       c)  $2 \times n + 5$                       d)  $2 \times 5n$                       12. \_\_\_\_\_

13. Solve.  $2n - 5 = 7$

- a)  $n = 1$                       b)  $n = 6$                       c)  $n = 8\frac{1}{2}$                       d)  $n = -2\frac{1}{2}$                       13. \_\_\_\_\_

14. Solve.  $\frac{2}{5}x - 7 = 41$

a)  $x = 120$

b)  $x = 240$

c)  $x = 106$

d)  $x = 99$

14. \_\_\_\_\_

15. Solve.  $m + 5(m - 1) = 7$

a)  $m = 2\frac{1}{3}$

b)  $m = -4\frac{1}{3}$

c)  $m = 2$

d)  $m = 1\frac{1}{3}$

15. \_\_\_\_\_

16. Solve.  $6x + 3 = 8x - 21$

a)  $x = -9$

b)  $x = 9$

c)  $x = 12$

d)  $x = -12$

16. \_\_\_\_\_

17. Solve.  $\frac{n}{3} + 5 \leq -4$

a)  $n \leq -3$

b)  $n \leq -27$

c)  $n \leq 3$

d)  $n \leq -17$

17. \_\_\_\_\_

18. Solve.  $-4d - 7 > 9$ .

a)  $d > -4$

b)  $d > -\frac{1}{2}$

c)  $d < -4$

d)  $d < 4$

18. \_\_\_\_\_

19. Solve for  $x$ .  $ax + b = c$

a)  $x = c - a - b$

b)  $x = \frac{cb}{a}$

c)  $x = \frac{c}{a} - b$

d)  $x = \frac{c - b}{a}$

19. \_\_\_\_\_

20. Solve.  $\frac{x+2}{20} = \frac{1}{4}$

- a)  $x = 3$                       b)  $x = 4\frac{1}{2}$                       c)  $x = 78$                       d)  $x = 6$                       20. \_\_\_\_\_

21. Solve.  $\frac{x+1}{5} = \frac{x}{4}$

- a)  $x = 1$                       b)  $x = 9\frac{1}{2}$                       c)  $x = 4$                       d)  $x = 6\frac{2}{3}$                       21. \_\_\_\_\_

22. A single batch of cookies calls for  $2\frac{1}{2}$  cups of flour. If you want to triple the recipe, how much flour should you use?

- a)  $6\frac{1}{2}$                       b)  $7\frac{1}{2}$                       c) 5                      d) 8                      22. \_\_\_\_\_

23. Find the slope between the points (4,7) and (6,-1)

- a) -4                      b)  $-\frac{1}{4}$                       c) 4                      d) 5                      23. \_\_\_\_\_

24. The graph of a linear equation with a negative slope should be a \_\_\_\_\_ line.

- a) upward sloping                      b) downward sloping  
c) vertical                      d) horizontal                      24. \_\_\_\_\_

25. Find the slope of the line parallel to  $y = \frac{2}{3}x - 7$ .

- a) -7                      b)  $-\frac{3}{2}$                       c) 7                      d)  $\frac{2}{3}$                       25. \_\_\_\_\_

26. Find the slope of the line perpendicular to  $y = 4x + 2$ .

- a) 2                      b)  $-\frac{1}{4}$                       c) 4                      d) -2                      26. \_\_\_\_\_

27. Rewrite  $4x - 5y = 10$  in slope-intercept form;  $y = mx + b$ .

- a)  $y = -4x - 2$                       b)  $y = -4x - 10$   
c)  $y = \frac{4}{5}x - 2$                       c)  $y = -\frac{4}{5}x + 2$                       27. \_\_\_\_\_

28. Rewrite  $y - 4 = 2(x + 3)$  in slope-intercept form;  $y = mx + b$ .

- a)  $y = 2x + 10$                       b)  $y = 2x + 7$   
d)  $y = 2x + 14$                       d)  $y = 2x + 2$                       28. \_\_\_\_\_

29. Mike has \$100 saved in his bank account and plans to save \$25 per week from his part time job. His bank balance,  $y$ , for any number of weeks,  $x$ , can be represented by which equation?

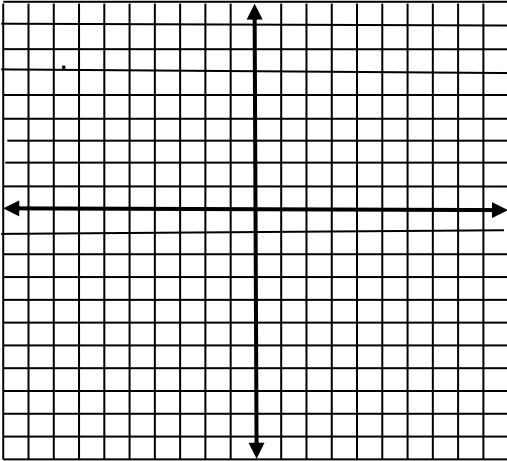
- a)  $y = 100x + 25$                       b)  $y = 25x + 100$   
c)  $x = 25y + 100x$                       d)  $x = 100 + 25y$                       29. \_\_\_\_\_

30. Paul weighs 170 pounds. Lisa weighs  $x$  pounds. If together they weigh 283 pounds, which equation could be used to represent this situation?

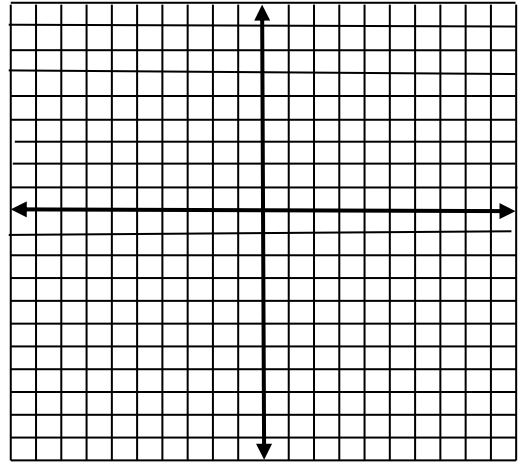
- a)  $283 + x = 170$                       b)  $x = 283 + 170$   
c)  $283 - x = 170$                       d)  $170 - x = 283$                       30. \_\_\_\_\_

31. Graph and label the following points on the coordinate plane.

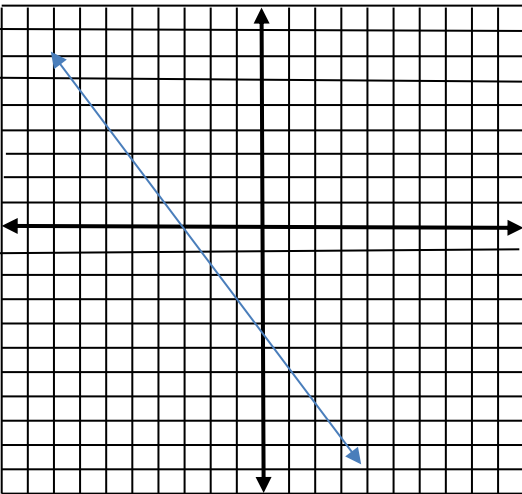
A(-3,-5) B(3,-1) C(0,4) D(-2,5)



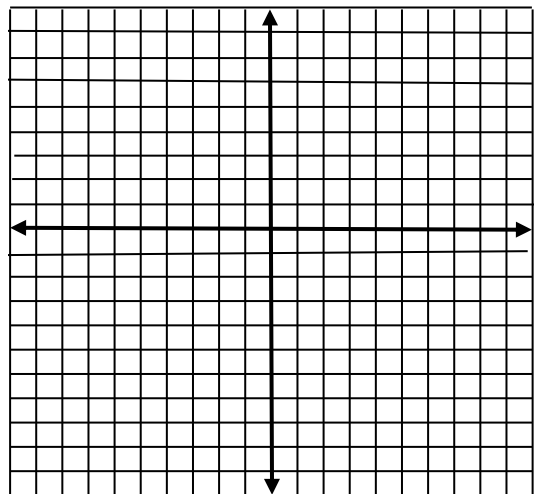
32. Graph the line that goes through (-2,3) and has slope  $-\frac{2}{3}$



33. Find the slope of the line.



34. Graph  $y = -3x + 2$



35. Graph  $y = \frac{3}{4}x - 3$

