Geometry **Name** _____

Pre-requisite Summer Packet **Date** _____ **Hour**_____

Show your work on a separate piece of paper. Put your final answer on the blank provided.
Simplify the following expressions.

1. $6(x-1)-3(2x+1)$ 1. _____**-9**_____

2. $mn^2(10m^2n-3m^3)$ 2. ___**$10m^3n^3 - 3m^4n^2$**____

3. $(x-2)(5x-1)$ 3. ___**$5x^2 – 11x + 2$**___

4. $(1-2y)^2$ 4. ___**$4y^2 – 4y + 1$**____

5. $2x\ (x+1)$ 5. ____**$2x^2 + 2x$**_____

6. $4(a-1)+2[(a+b)-6(b-1)]$ 6. ____**6a – 10b + 8**____

7. $(7x+4)-(2x+2)$ 7. ____**5x + 2**_____

Factor the following expressions

8. $24y^3-3y^2$ 8. ___**$3y^2(8y – 1)$** _____

9. $4x^2+16$ 9. ____**$4(x^2 + 4)$** _____

10. $9y^2-1$ 10. ___ **(3y – 1)(3y + 1)** ___

11. $2x^2-18$ 11. ____**2(x – 3)(x + 3)** ____

12. $x^2+9x+20$ 12. ____ **(x + 4)(x+5)** _____

13. a^2-a-6 13. ___ **(a – 3)(a +2)** ____

14. $y^2-12y+36$ 14. ___ **$(y - 6)^2$** ____

Solve each system of equations algebraically.

15. $\begin{aligned} m-n&=0 \\ 3m-2n&=1 \end{aligned}$ 15. _____**(1, 1)** _____

16. $\begin{aligned} x+2y&=38 \\ x-12y&=-32 \end{aligned}$ 16. _____ **(28, 5)** _____

17. $8x + y = -8$

$-2x + 3y = 35$

17. ____**(-2.27, 10.15)**____

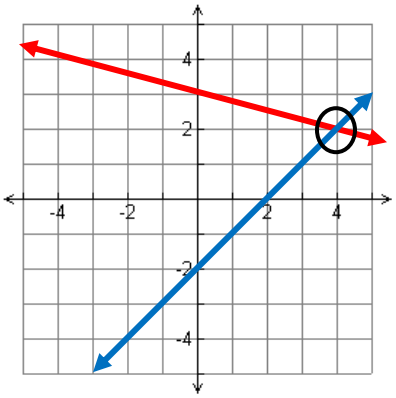
Solve the following system of equations by graphing.

18. $x + 4y = 12$ (red)

$x - y = 2$ (blue)

Solution: (4,2)

18.



Simplify the following radical expressions.

19. $\sqrt{32}$ 19. _____**4√2**_____

20. $\sqrt{80}$ 20. _____**4√5**_____

21. $\frac{\sqrt{2}}{\sqrt{3}}$ 21. _____**√6 / 3**_____

22. $\frac{1}{\sqrt{2}}$ 22. _____**√2 / 2** _____

23. $\sqrt{45} \cdot \sqrt{5}$ 23. _____**15**_____

24. $\sqrt{8} - \sqrt{64}$ 24. _____**2√2 – 8** _____

25. $2\sqrt{48} - \sqrt{9} - 6\sqrt{18}$ 25. __**8√3 – 3 - 18√2**____

26. $\left(3\sqrt{2}\right)^2$ 26. ____**18**_____

Solve the following equations.

27. $2a-1=3a+4$ — 27. _____**a = -5**_____

28. $2(d+5)-4(d-5)=0$ — 28. _____**d = 15**_____

29. $4x=3(4x-3)$ — 29. _____**x = 9/8** _____

30. $n^2-2n+24=0$ — 30. _____**n = 6 or - 4**_____

31. $n^2-36=0$ — 31. _____**n = ± 6**_____

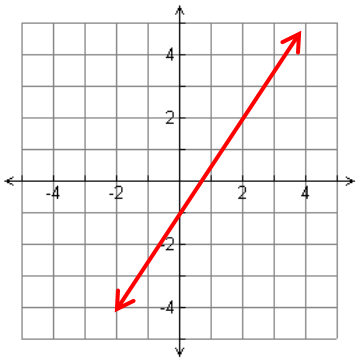
32. $\frac{t}{25}=\frac{471}{15}$ — 32. _____**t = 785**_____

33. $\frac{4}{x+2}=\frac{16}{5+x}$ — 33. _____**x = -1**_____

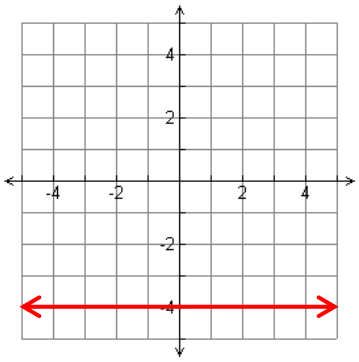
34. $\frac{6x+5}{4x+1}=\frac{3x-2}{2x-1}$ — 34. ____**x = 1/3** _____

Graph the following linear equations.

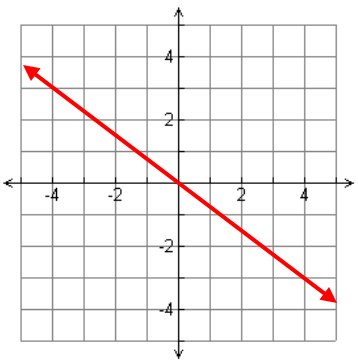
35. $3x-2y=2$



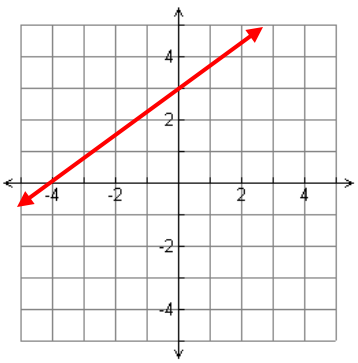
36. y = - 4



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



38. $-3x+4y=12$



39. Find the y-intercept of $2y - 5x = 0$

39. _____**(0, 0)**_____

40. Find the equation of a line in slope-intercept form that has a slope of -3 and y-intercept of (0, 8).

40. ____ **y = -3x + 8** ____

41. Find the equation in slope-intercept form for the line that has a slope of 2 and passes through the point ($^{-}$1, $^{-}$ 1).

41. ____ **y = 2x + 1** _____

42. Find the equation of a line in slope-intercept form that passes through (-6, -7) and (-5, 1).

42. _____ **y = 8x + 41** _____

43. Calculate the slope of the line that passes through the points (3, -2) and (8, 4).

43. _____**m = 6/5** _____

44. Use the distance formula to determine the distance between the two points (3,6) and (1,2).

44. __**d = √20 or 2√5**____

45. Use the midpoint formula to determine the midpoint of the two points (3, 6) and (1, 2).

45. _____ **(2, 4)** _____