

## Geometry Summer Packet

Directions: This packet will be taken up the first day of school. Be sure to complete every problem in the packet and show all of your work or credit will not be given. Circle your final answer. Use any resources that are available to you such as help from parents or other students, notes from previous classes, online resources, but do not use AI. **IMPORTANT-** This packet will be collected and taken as a grade when you return to school and a test will be given the first week over the material on the packet.

**Simplify the following expressions.**

1.  $mn^2(10m^2n - 3m^3)$

2.  $(x - 2)(5x - 1)$

3.  $(1 - 2y)^2$

4.  $2x(x + 1)$

5.  $4(a - 1) + 2[(a + b) - 6(b - 1)]$

6.  $(7x + 4) - (2x + 2)$

**Factor the following expressions.**

7.  $24y^3 - 3y^2$

8.  $4x^2 + 16$

9.  $9y^2 - 1$

10.  $2x^2 - 18$

11.  $2x^2 - 18$

12.  $y^2 - 12y + 36$

**Solve each system of equations by either substitution or elimination.**

13.  $m - n = 0$   
 $3m - 2n = 1$

14.  $x + 2y = 38$   
 $x - 12y = -32$

15.  $8x + y = -8$   
 $-2x + 3y = 35$

16.

**Simplify the following radical expressions.**

17.  $\sqrt{32}$

18.  $\sqrt{80}$

19.  $\frac{1}{\sqrt{2}}$

20.  $\sqrt{45} \times \sqrt{5}$

21.  $\frac{\sqrt{2}}{\sqrt{3}}$

22.  $\sqrt{8} - \sqrt{64}$

23.  $2\sqrt{48} - \sqrt{9} - 6\sqrt{18}$

24.  $(3\sqrt{2})^2$

**Solve the following equations.**

25.  $2a - 1 = 3a + 4$

26.  $2(d + 5) - 4(d - 5) = 0$

27.  $4x = 3(4x - 3)$

28.  $n^2 - 2n - 24 = 0$

29.  $n^2 - 36 = 0$

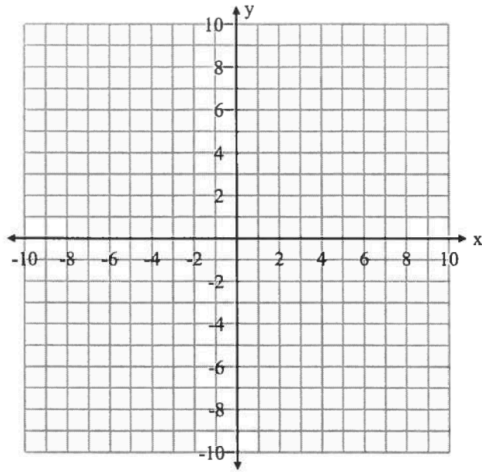
30.  $\frac{t}{25} = \frac{471}{15}$

31.  $\frac{4}{x+2} = \frac{16}{5+x}$

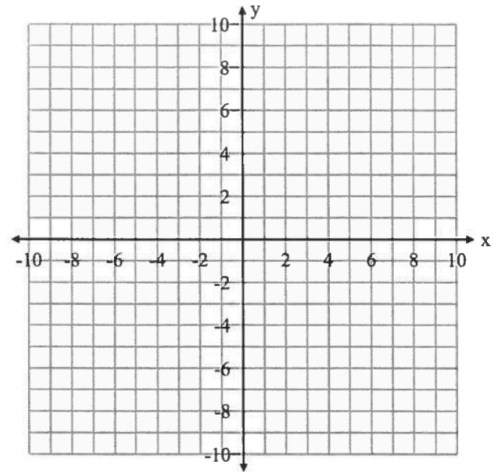
32.  $\frac{6x+5}{4x+1} = \frac{3x-2}{2x-1}$

**Graph the following linear equations.**

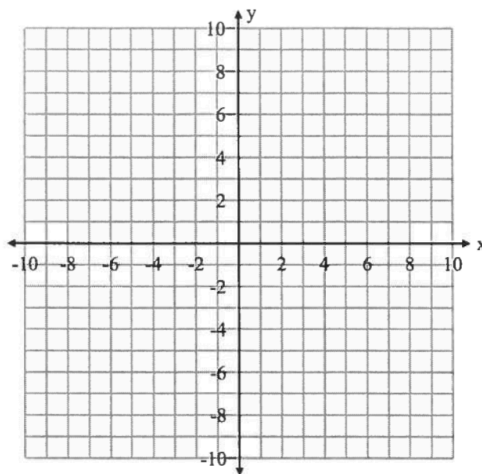
33.  $3x - 2y = 2$



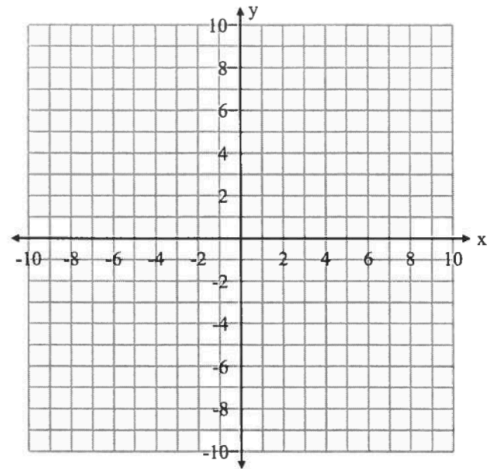
34.  $y = -4$



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



36.  $-3x + 4y = 12$



**Answer the following short word problems about graphs.**

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

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

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

40. Find the slope of the line with the points  $(3,-2)$  and  $(8,4)$

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

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