

Name \_\_\_\_\_

Date \_\_\_\_\_

**SEMESTER EXAM REVIEW – PART I**

1. Solve:  $2 - 3x = 4 + x$

1. \_\_\_\_\_

2. Solve:  $3(4 - 5x) = 4 - (7 - x)$

2. \_\_\_\_\_

3. Solve for F:  $C = \frac{5}{9}(F - 32)$

3. \_\_\_\_\_

4. Solve  $x - 2 < -2(1 + x)$

4. \_\_\_\_\_

5. Solve  $|2x - 3| \leq 5$ . Write answer in algebraic notation.

5. \_\_\_\_\_

6. Solve  $|6x + 2| \geq 14$ . Write answer in interval notation.

6. \_\_\_\_\_

7. Identify the x-intercept of  $2x - 10y = 20$ .

7. \_\_\_\_\_

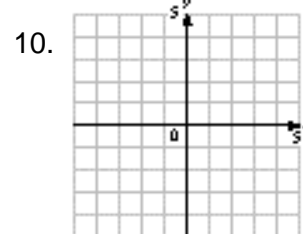
8. Identify the y-intercept of  $2x - 10y = 20$ .

8. \_\_\_\_\_

9. Identify the slope and y-intercept of  $3x - 15y = 7$ .

9. \_\_\_\_\_

10. Graph:  $y = \frac{1}{4}x - 3$



11. If  $f(x) = \begin{cases} x - 1, & x > 1 \\ x + 2, & x \leq 1 \end{cases}$  find  $f(3)$ .

11. \_\_\_\_\_

12. Find the slope of the line through  $(3, 6)$  &  $(-6, 0)$ .

12. \_\_\_\_\_

13. Write an equation of the line through  $(3, 6)$  &  $(-6, 0)$  in *point-slope* form.

13. \_\_\_\_\_

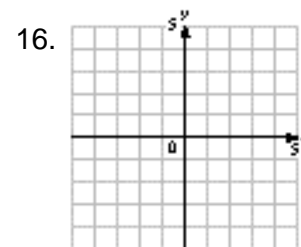
14. Write an equation of the line through  $(3, 6)$  &  $(-6, 0)$  in *slope-intercept* form.

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

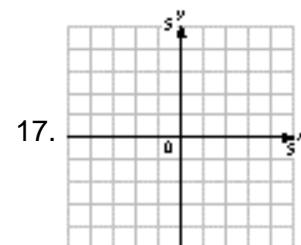
15. Write the equation  $3y = 2x - 5$  in *standard* form.

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

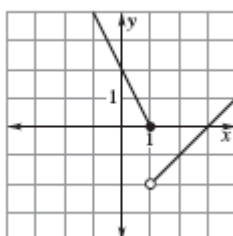
16. Graph the inequality  $4x - 3y > 4$



17. Graph the function  $f(x) = \begin{cases} -2, & 0 < x \leq 1 \\ 2, & 1 < x \leq 2 \\ 3, & 2 < x \leq 3 \\ 5, & 3 < x \leq 4 \end{cases}$



18. Write the equation for the function:



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

19. Solve  $\begin{cases} 8x + 3y = -2 \\ -5x + y = -3 \end{cases}$

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

20. Solve  $\begin{cases} y = \frac{3}{4}x + 3 \\ y = 3x - 6 \end{cases}$

20. \_\_\_\_\_

21. Solve  $\begin{cases} x + 4y + z = 12 \\ y - 2z = -7 \\ z = 6 \end{cases}$

21. \_\_\_\_\_

For # 22-26,  $f(x) = 2x^2$ ;  $g(x) = x + 1$

22.  $(f - g)(x) =$

22. \_\_\_\_\_

23.  $\frac{f(x)}{g(x)} =$

23. \_\_\_\_\_

24.  $f(g(x)) =$

24. \_\_\_\_\_

25.  $(g \circ f)(x) =$

25. \_\_\_\_\_

26.  $(f \circ f)(-4) =$

26. \_\_\_\_\_

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**SEMESTER EXAM REVIEW – PART II**For # 27-28,  $f(x) = \frac{1}{2}x^3 + 2$ 

27. Identify the type of parent function and its domain and range.

27. \_\_\_\_\_

28. Identify all transformations.

28. \_\_\_\_\_

For # 29-30,  $f(x) = -\sqrt{-x-1}$ 

29. Identify the type of parent function and its domain and range.

29. \_\_\_\_\_

30. Identify all transformations.

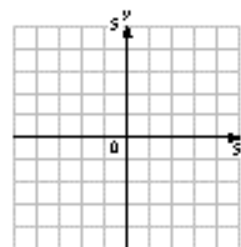
30. \_\_\_\_\_

31. Find the inverse of  $y = \frac{2}{3}x - 4$ 

31. \_\_\_\_\_

32. Graph of the inverse of  $f(x) = -x^2 - 3$ 

32. \_\_\_\_\_

33. Solve  $2x^2 + 48 = -22x$ 

33. \_\_\_\_\_

34. Solve  $16x^2 - 24x = -9$ 

34. \_\_\_\_\_

35. Solve  $x^2 + 4x = 0$ 

35. \_\_\_\_\_

36. Write  $(2 + 11i) - (6 - i)$  in standard form.

36. \_\_\_\_\_

37. Write  $\frac{8+i}{1-2i}$  in standard form.

37. \_\_\_\_\_

38. Write  $y = x^2 - 8x + 17$  in vertex form.

38. \_\_\_\_\_

39. Identify the vertex of  $y = x^2 - 8x + 17$ .

39. \_\_\_\_\_

40. Find the discriminant of the function  $7x^2 - x = -10$ ?

40. \_\_\_\_\_

41. How many and what type of zeros in the function  $7x^2 - x = -10$ ?

41. \_\_\_\_\_

42. Solve  $3x^2 - 5x + 1 = 0$ .

42. \_\_\_\_\_

43. Solve  $x^2 + 6x + 13 = 0$

43. \_\_\_\_\_

44. Solve  $4x^2 - 2x = 2x^2 - 5x - 1$

44. \_\_\_\_\_

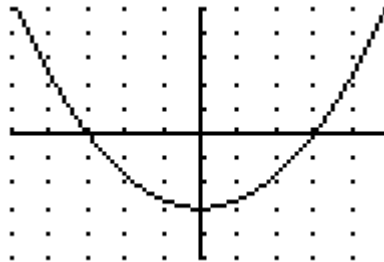
45. Solve  $-x^2 + x + 6 \geq 0$

45. \_\_\_\_\_

46. Write the vertex form of a quadratic function whose graph has vertex (6, 1) contains the point (4, 5).

46. \_\_\_\_\_

47. Write the intercept form of the graph:



47. \_\_\_\_\_

48. Simplify  $\frac{3x^3y^{-2}}{7y^{-2}} \cdot \frac{-7xy}{21x^{-3}}$

48. \_\_\_\_\_

49. Evaluate  $(2^2 \cdot 6^{-1})^2$

49. \_\_\_\_\_

50. You planted a rectangular flower bed of red roses that is 8 feet by 12 feet. You want to plant a border of yellow roses around the flower bed. Since you bought the same number of red and yellow roses, the areas of the border and inner flower bed will be equal. What should be the width of the border?

50. \_\_\_\_\_