

**Part 1: Compute the following. Show all work for credit. 2 points each.**

1)  $\frac{-3^2}{7} =$

6)  $4^{-2} + 4 =$

2)  $\frac{-3}{4} \div \left(-\frac{9}{8}\right) =$

7)  $\frac{21}{2} \times \frac{4}{3} =$

3)  $-|-3+6| =$

8)  $4^{\frac{3}{2}} =$

4)  $\frac{1}{4} + \frac{2}{3} - \frac{5}{2} =$

9)  $12.9 - 1.01 =$

5)  $16 \div 4 - 2 \cdot 3^2 =$

10)  $21 \cdot 0 \cdot (5 + 4) =$

Put answers  
HERE!!

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4) \_\_\_\_\_

5) \_\_\_\_\_

6) \_\_\_\_\_

7) \_\_\_\_\_

8) \_\_\_\_\_

9) \_\_\_\_\_


10) \_\_\_\_\_

**Part II. Show all work for possible partial credit. 5 points each.**

11. Solve the equation for  $x$ .  $5x = 2(3 - 5x) - 5$

12. Solve the inequality. Give the solution set in both interval and graph forms.

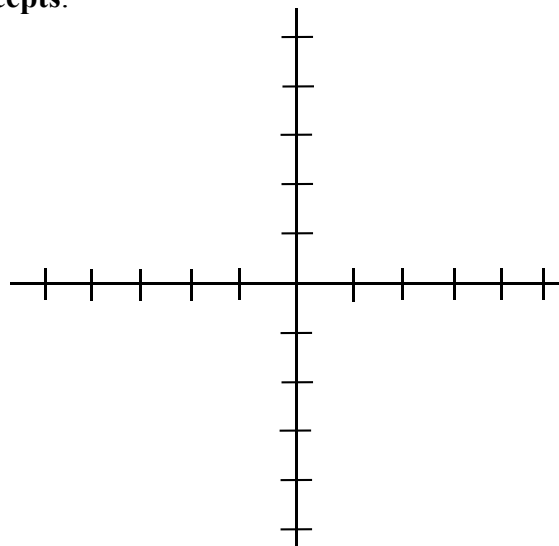
$$\frac{2}{3}x \geq -4$$

Graph solution: 

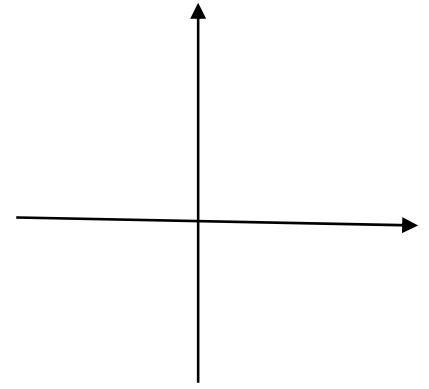
Interval notation:

13. Graph the given line. **Label all intercepts.**

$$3x + 7y = 4$$



14. Graph the line that has a y-intercept of (0,4) and a slope of  $\frac{1}{3}$ .  
Label at least 2 points.



15. Find the product and simplify:  $(x - \sqrt{y})(x - \sqrt{y})$

16. Simplify the expression:  $\frac{1}{2} - \frac{3}{6x} + \left(\frac{3}{3x}\right)$

17. Simplify using **only positive exponents**. Assume all variables represent positive real numbers.

$$\frac{2x^5 \cdot 3^{-2}}{(x^{-2})^3}$$

Factor **completely**, write **prime** if it can't factor:

18.  $3y^2 - 11y - 20$

19.  $2x^3 - 50x$

20.  $2a^3 + a^2 - 14a - 7$

21. Express and simplify in lowest terms:

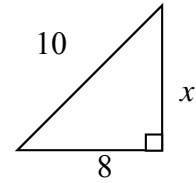
$$\frac{x^2 - 9}{x^2 - x - 6}$$

22. Solve:  $x^2 - 81 = 0$ .

23. Find the slope of the line through the points  $(4, -1)$  and  $(-3, 4)$ .

24. Given  $C = \frac{5}{9}(F - 32)$ , solve for F.

25. For the given right triangle, find  $x$ . You must set up and solve an equation for credit.



**Part III. Show all work for possible partial credit. 7 points each**

26. Solve for  $x$ .  $\frac{3x-5}{3} + \frac{x+4}{4} = 1$

27. Multiply and **simplify**:  $\frac{4x-20}{5x} \cdot \frac{4x^4}{10-2x}$

28. Choose a domain for each function. Write the correct number in the answer blank.

- a)  $f(x) = \frac{4}{x-3}$     Answer \_\_\_\_\_
- b)  $g(x) = \sqrt{x} - 3$     Answer \_\_\_\_\_
- c)  $h(x) = \sqrt{x-3}$     Answer \_\_\_\_\_
- 1)  $(-\infty, \infty)$   
2)  $(0, \infty)$   
3)  $(9, \infty)$   
4)  $[3, \infty)$   
5)  $(-\infty, 3) \cup (3, \infty)$   
6) Not listed.

29. Find the equation of the line passing through  $(-2, -1)$  with slope 5.

The point slope form is  $\Rightarrow (y - \underline{\quad}) = \underline{\quad}(x - \underline{\quad})$ .

The slope intercept form is  $\Rightarrow y = \underline{\quad}x + \underline{\quad}$ .

30. For the following pair of functions, find the following. Be sure to express in simplest form.

$$f(x) = 4x - 3 \text{ and } g(x) = -2x^2 + 2x + 6$$

(a)  $(f - g)(3) =$

(b)  $(f + g)(x) =$

31. Perform the indicated operation. **Reduce** to lowest terms.

$$\frac{2}{x-2} - \frac{5}{x^2 - 2x}$$

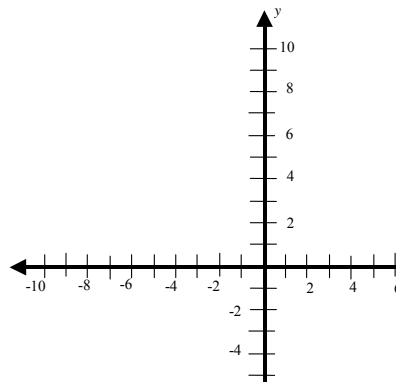
32. Express the radical in simplified form. Assume that all variables represent positive real numbers.

a)  $\sqrt{\frac{25a^6}{81b^{10}}}$

b)  $2\sqrt{24} + \sqrt{54}$

33. Graph the function by creating a table of ordered pairs:

$$f(x) = x^2 + 2$$



$x$	$y$

34. Complete the following table.

Inequality(set)	Interval
a) $x < 5$	_____
b) _____	$(-\infty, 2)$
c) $-3 < x \leq 1$	_____
d) $x \neq 2$	_____

35. Solve for  $x$ .  $x^3 - 14x^2 + 45x = 0$

36. Solve for  $p$  algebraically:  $\sqrt{5p+6} = p$   
Remember to check.

37. Given  $f(x) = x^2 - 3x + 2$ , evaluate

a)  $f(-2)$

b)  $f(2p)$



**Part IV. Choose 3 of the following 5 problems. You must indicate the 3 problems to be graded. If not, we will grade the first three. Show all work for possible partial credit. 7 points each.**

38. Solve for  $x$  and simplify answers.  $x^2 - 6x + 3 = 0$

Grade

39. Factor completely:  $1 - x^{16}$ .

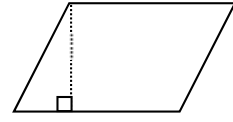
Grade

40. How many gallons of 40% antifreeze must be mixed with 10 gallons of 70% solution to get a 50% solution? Must set up equation(s) and/or table for credit.

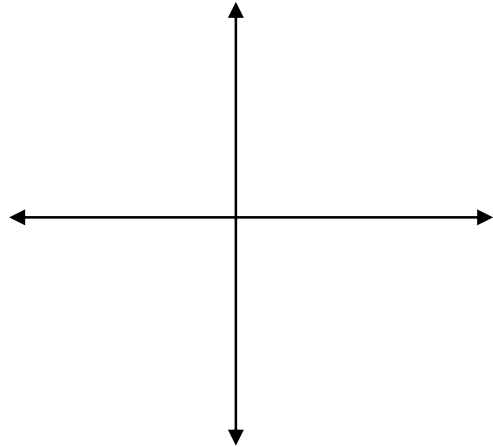
Grade

41. The base of a parallelogram is 5 feet more than the height. If the area of the parallelogram is 36 ft.<sup>2</sup>, what are the measures of the base and height?

**SET UP AND SOLVE AN EQUATION FOR CREDIT!**  
area of parallelogram = base times height



42. Graph the function  $f(x) = \frac{3}{x}$ . Label at least 5 pts.



BE SURE YOU HAVE MARKED THE 3 PROBLEMS TO BE GRADED.