

This worksheet is a review of the entering objectives for Precalculus and is due on the *first day back to school*. It is to be done NEATLY and on a SEPARATE sheet of paper. Have a great summer !! We are looking forward to seeing you in August. This assignment will be evaluated as a study skill.

In exercises #1-2, find the points that are symmetric to the given point (a) across the  $x$ -axis, (b) across the  $y$ -axis, and (c) across the origin.

- (1, 4)
- (2, -3)
- Find equations for the vertical and horizontal lines through the point (1, 3).

In exercises 4 through 7, write an equation for the given line:

- $P(2,3), m = 2$
- $P(2,3), m = 0$
- $P(1,0),$  no slope
- $P(-1,2), m = -1/2$
- Given the point,  $P(6, 0)$  and the line,  $l: 2x - y = -2$ 
  - Find an equation for the line through  $P$  parallel to  $l$ .
  - Find an equation of the line through  $P$  perpendicular to  $l$ .

**Graph** each of the following. **State the domain and range.**

- $y = (x + 1)^2 - 3$
- $y = x^3$
- $y = \sqrt{x}$
- $y = e^x$
- $y = \ln x$
- $y = \frac{1}{x - 2}$
- $y = |x + 1|$
- Given:  $f(x) = \frac{1}{x}; g(x) = x^2 - 4$ 
  - Find the domain and range of  $f$  and  $g$ .
  - Find the equations for  $f + g, f - g, f/g$ .

17. Solve the system by a) the addition method **and** b) the substitution method:

$$8x + y = 11$$

$$x - y = 97$$

Solve and Check. Show all work.

- $\sqrt{x+1} = \sqrt{x+6} - 1$
- $8^{2x+3} = 4 \cdot 2^{x+1}$
- $\frac{x+1}{3x-6} = \frac{5x}{6} + \frac{1}{x-2}$

21. Solve by factoring:  $3x^2 - 10x = -13x$
22. Solve by quadratic formula:  $2x^2 = 3x + 7$
23. Solve by the square root property:  $3(x - 5)^2 = 27$
24. Solve by completing the square:  $x^2 - 4x + 7 = 0$

Simplify each of the following:

25.  $\frac{\frac{1}{x} - \frac{1}{x+1}}{\frac{1}{x} - \frac{1}{x-1}}$

26.  $\frac{3 - \sqrt{2}}{2\sqrt{3} + 5}$

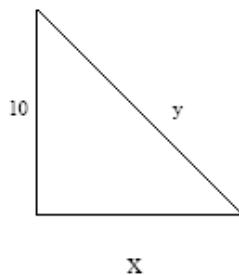
27.  $\sqrt{-16}\sqrt{-169}$

28.  $\log_3 27$

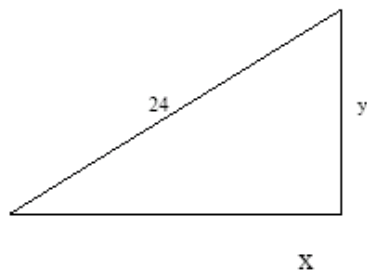
29.  $\left(\frac{1}{625}\right)^{\frac{3}{4}}$

Determine the lengths of the missing sides of the special right triangles.

31. A  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle



32. A  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle.



Factor completely.

33.  $4x^3 - 4x$

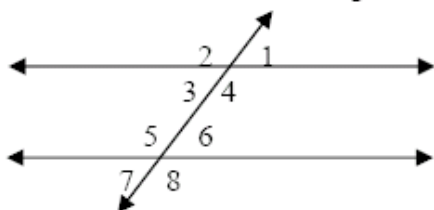
34.  $8x^2 + 2x - 15$

35.  $49 - 25x^2$

36.  $x^2 + 15x = 56$

37. Given two endpoints of a segment: A  $(2, -7)$  and B  $(-5, -4)$  find the length **and** midpoint of the segment.

38. Given that the measure of angle 1 is  $37^\circ$ , find the measure of all other angles.



39. Fill in the blank for each of the following:

- a. The sum of the interior angles of a triangle is \_\_\_\_\_.
- b. A  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle has sides with ratio measures \_\_\_\_\_.
- c. A  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle has sides with ratio measures \_\_\_\_\_.
- d. In a triangle, the largest angle is opposite the \_\_\_\_\_.
- e. In a triangle, the smallest angle is opposite the \_\_\_\_\_.
- f. In a triangle, if two angles are equal in measure then \_\_\_\_\_.