

Summer Preparation for PRECALCULUS

This worksheet is a review of the entering objectives for Precalculus and is due the **first week of school**. Work is to be done NEATLY with the answers clearly written on the attached answer grid. You will staple your work to the back of the answer grid. We are looking forward to seeing you in August. Have a great summer!! ☺

Your future Precalculus Teachers

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. (1,4)

2. (2, -3)

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:

4. $P(2,3)$, $m = 2$

5. $P(1,0)$, no slope

6. $P(-1,2)$, $m = -1/2$

7. $P(2,3)$, $m = 0$

8. Given the point, $P(6, 0)$ and the line, $L: 2x - y = -2$

A. Find an equation for the line through P parallel to L.

B. Find an equation of the line through P perpendicular to L.

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

9. $y = (x + 1)^2 - 3$

10. $y = x^3$

11. $y = \sqrt{x}$

12. $y = e^x$

13. $y = \ln x$

14. $y = \frac{1}{x - 2}$

15. $y = |x + 1|$

16. Given: $f(x) = x + 1$; $g(x) = x^2 - 4$

A. Find the domain and range of f and g .

B. Find the equations for $f + g$, f^{-1} , f/g .

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

$$8x + y = 11$$

$$x - y = 97$$

In exercises 18 through 20, solve and check. Show all work.

18. $\sqrt{x+1} = \sqrt{x+6} - 1$

19. $8^{2x+3} = 4 \cdot 2^{x+1}$

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

21. Solve by factoring: $3x^2 - 10x = -13x$

22. Solve by quadratic formula: $2x^2 = 3x + 7$

23. Solve by the square root property: $3(x - 5)^2 = 27$

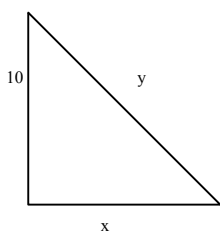
24. Solve by completing the square (DO NOT FACTOR): $x^2 - 4x - 12 = 0$

Simplify

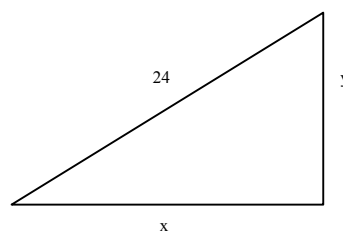
25. $\frac{3 + \frac{2}{y}}{3 - \frac{2}{y}}$ 26. $\frac{3 - \sqrt{2}}{2\sqrt{3} + 5}$ 27. $\sqrt{-16}\sqrt{-169}$ 28. $\log_3 27$
29. $\left(\frac{1}{625}\right)^{-\frac{3}{4}}$ 30. $(-2^3)^5(x y^2)^2$

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

31. A 45°-45°-90° triangle



32. A 30°-60°-90° triangle.

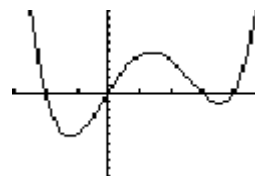
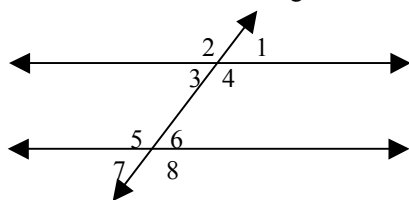


Factor completely.

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 (-6, -2) and B (2, 4), find the length **and** midpoint of the segment.

38. Given that the measure of angle 1 is 37°, find the measure of all other angles.



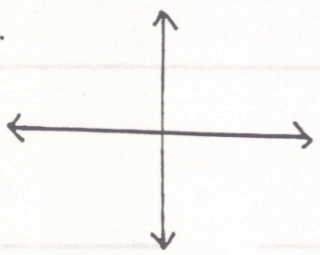
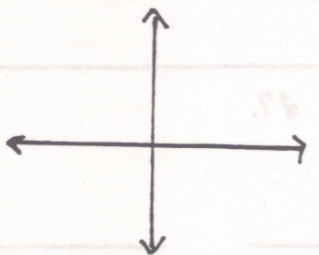
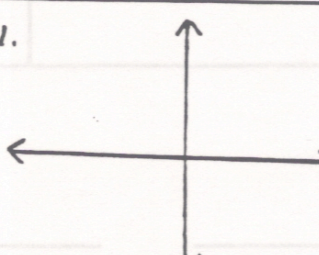
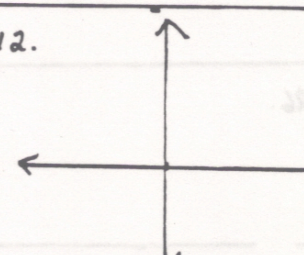
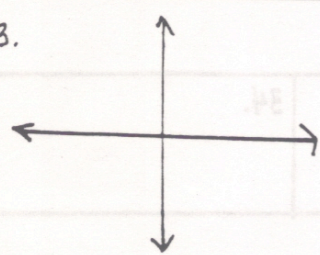
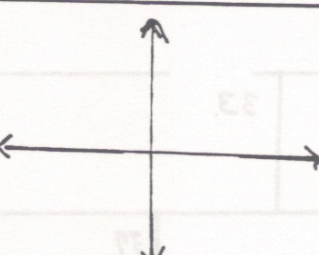
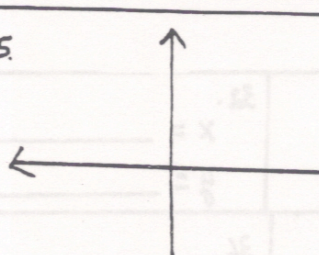
39. Write an equation for the polynomial graphed at the right.

40. Fill in the blank.

- The sum of the interior angles of a triangle is _____.
- A 45°-45°-90° triangle has sides with ratio measures _____.
- A 30°-60°-90° triangle has sides with ratio measures _____.
- In a triangle, the largest angle is opposite the _____.
- In a triangle, the smallest angle is opposite the _____.

f. In a triangle, if two angles are equal in measure, then the sides opposite these angles are _____.

1.	2.	3.
4.	5.	6.
7.	8A.	8B.

<p>9.</p>  <p>Domain _____ Range _____</p>	<p>10.</p>  <p>Domain _____ Range _____</p>	<p>11.</p>  <p>Domain _____ Range _____</p>	<p>12.</p>  <p>Domain _____ Range _____</p>
<p>13.</p>  <p>Domain _____ Range _____</p>	<p>14.</p>  <p>Domain _____ Range _____</p>	<p>15.</p>  <p>Domain _____ Range _____</p>	

16A. Domain of f _____ Domain of g _____
 Range of f. _____ Range of g. _____

16B. $f+g$ _____
 f^{-1} _____
 f/g _____

17.	18.	19.
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20.

21.

22.

23.

24.

25.

26.

27.

28.

29.

30.

31. $x =$ _____
 $y =$ _____

32. $x =$ _____
 $y =$ _____

33.

34.

35.

36.

37.

38.

$\angle 2$ _____ $\angle 6$ _____
 $\angle 3$ _____ $\angle 7$ _____
 $\angle 4$ _____ $\angle 8$ _____
 $\angle 5$ _____

39.

40.

a. _____
b. _____
c. _____
d. _____
e. _____
f. _____