

****Show all work****

**** on separate paper****

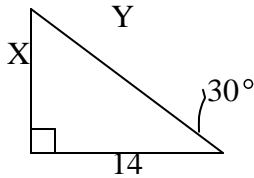
Advanced Math
Summer Packet 2010

Graph on a number line.

1. $-2 \leq x + 3 < 6$ D = { Reals

2. Convert 150 cubic centimeters per second to cubic feet per minute.

3. Find X and Y.



Solve:

4.
$$\begin{cases} 3x + 2y - z = 1 \\ x + y - z = -1 \\ 5x + 2y + 2z = 8 \end{cases}$$

Solve for x:

5.
$$\frac{h}{a+n} = g \left(\frac{y}{x} - d \right)$$

Solve by completing the square.

6. $2x^2 - 5x - 8 = 0$

Simplify:

7. $2a^2 + 5x - 8 - 3(2a^2 - 3x + 2)$

8. Find the distance between $(-6, 5)$ and $(2, -1)$

9. Find the slope between $(2, -4)$ and $(-3, 10)$.

Solve:

10.
$$\begin{cases} x^2 + y^2 = 11 \\ y - x = 1 \end{cases}$$

Solve:

11.
$$\begin{cases} BT + 9T = 36 \\ BT - 9T = 18 \end{cases}$$

Solve by using elimination:

12.
$$\begin{cases} 2x + y = 6 \\ x - 3y = 2 \end{cases}$$

Simplify:

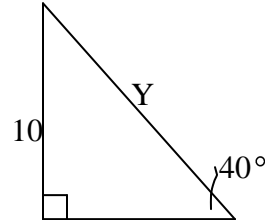
13.
$$\frac{x^2 + x - 6}{x^3 - 4x^2 - 21x} \div \frac{x^2 - 4}{x^2 + 2x}$$

Use the quadratic formula to solve:

14. $2x^2 - 3x + 5 = 0$

Find Y.

15.



Solve by completing the square.

16. $x^2 + 6x - 8 = 0$

Solve by completing the square.

17. $2x^2 - 8x - 3 = 0$

Solve:

18.
$$\left\{ \begin{array}{l} \frac{1}{2}x + \frac{3}{5}y = \frac{-2}{5} \\ 0.06x - 0.2y = 1.04 \end{array} \right\}$$

19. Find three consecutive integers such that the product of the first and the third is 4 greater than four times the second.

Solve by factoring:

20. $2x^2 - 3x - 20 = 0$

21.

The sum of two numbers is 136 and their difference is 50. What are the numbers?

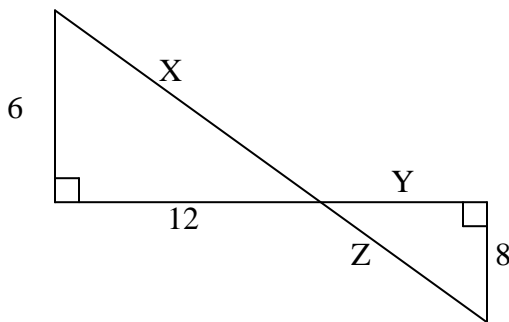
Simplify:

22. $8i^3 - 5i^4 + 2\sqrt{-25} + \sqrt{-5}\sqrt{-5}$

Solve by substitution:

23.
$$\left\{ \begin{array}{l} 2x + 3y = 9 \\ x + 4y = 12 \end{array} \right\}$$

24. Find Z.



Solve by using the quadratic formula.

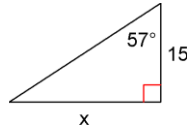
25. $3x^2 + 6 = -3x$

Solve:

26. $5 + \sqrt{3x - 4} = 9$

27. Four times the number of black marbles exceeded three times the number of yellow marbles by 17. Also, 6 times the number of black marbles was 2 less than 10 times the number of yellow marbles. How many of each were there?

28. Find x



Simplify:

29.
$$\frac{4\sqrt{2} - 3}{\sqrt{2} - 2}$$

Simplify:

30.
$$\frac{-2 + \sqrt{2}}{3 + \sqrt{3}}$$

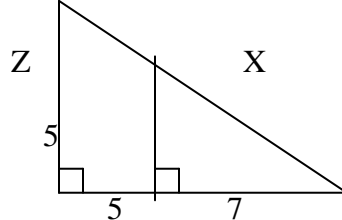
Simplify:

31.
$$\frac{x - 5}{x^2 - 5x - 14} - \frac{3x}{7 - x}$$

Simplify:

32. $8i^3 - 5i^4 + (2i - 3)(i + 4)$

33. Find Y.



Simplify:

Solve:

34.
$$\left\{ \begin{array}{l} \frac{1}{4}x - \frac{1}{5}y = 2 \\ 0.03x - 0.4y = -1.64 \end{array} \right\}$$

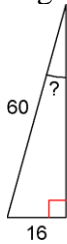
Simplify:

35. $\frac{2}{1-\sqrt{3}}$

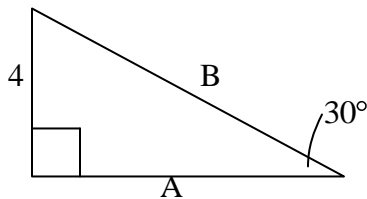
Simplify:

36. $5\sqrt{\frac{6}{11}} - 7\sqrt{\frac{11}{6}} - \sqrt{594}$

37. Find the missing angle.



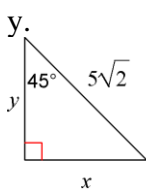
38. Find A and B.



Graph:

39. $\begin{cases} y \leq \frac{-1}{2}x + 3 \\ y > 3x - 1 \end{cases}$

40. Find x and y.

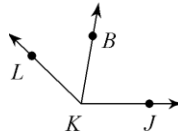


41. Solve:

$x^2 = -5x + 3$

42.

Find $m\angle BKJ$ if $m\angle LKJ = 136^\circ$ and $m\angle LKB = 56^\circ$.



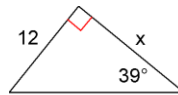
Solve:

43. $\begin{cases} 6x - y = 5 \\ xy = 4 \end{cases}$

Solve the system:

44. $\begin{cases} x^2 + y^2 = 10 \\ 3x^2 - y^2 = -2 \end{cases}$

45. Find x.



Graph on a number line.

46. $-6 \leq x - 2 \leq 5; D = \text{Reals}$

Graph:

47. $\begin{cases} y < \frac{1}{2}x + 2 \\ y \geq -x - 3 \end{cases}$

48. Find n.

$\frac{n-4}{7} = \frac{n+12}{3}$

Solve:

49. $\begin{cases} x + 2y + z = 4 \\ 2x - y - z = 0 \\ 2x - 2y + z = 1 \end{cases}$

50. Simplify

$$-2\sqrt{12} - 3\sqrt{27} - 3\sqrt{8}$$

51. Find the discriminant and describe the types of solutions

$$-2x + 3x^2 = -8$$

52. Write the equation of a line through (4,0) and perpendicular to $y = \frac{-4}{5}x + 5$.

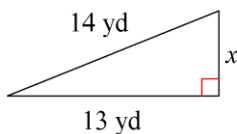
Solve:

$$53. \begin{cases} 6x - y = 5 \\ xy = 4 \end{cases}$$

Solve:

$$54. \begin{cases} x^2 + y^2 = 10 \\ 3x^2 - y^2 = -2 \end{cases}$$

55. Solve for x.



Solve:

$$56. \begin{cases} x - 2y = 3 \\ xy = 6 \end{cases}$$

Solve by substitution:

$$57. \begin{cases} 3x + 2y = -3 \\ 4x - 3y = 13 \end{cases}$$

Simplify:

$$58. -7\sqrt{6}(4\sqrt{12} + 4)$$

Graph

$$59. y = x^2 + 8x + 4$$

Solve:

$$60. 0.003x + 0.9 = 2.1$$

61. What percent of 40 is 15?

Evaluate:

$$62. ac^2(a^2 - c) \text{ if } a = \frac{-1}{5} \text{ and } c = \frac{1}{2}$$

63. Find n.

$$11(n - 1) - 4 = -1 + 3(-10n + 9)$$

Factor:

$$64. x^3 - y^6$$

Solve:

$$66. \log_6(x - 3) + \log_6 2 = \log_6 24$$

Solve:

$$67. \sqrt{x - 21} + 3 = \sqrt{x}$$

Graph:

$$68. 4x + 6y = 24$$