

Name: _____

Math Department: Summer Assignment for Students Entering Algebra II

The purpose of this assignment is to keep your math skills “fresh” over the summer. The assignment will be checked when you return to school. A quiz will be given on this material after classes begin.

If you would like additional practice, or tutorials on problems similar to those below, visit www.math.com (the most helpful categories will most likely be the “Algebra,” “Geometry,” & “Trigonometry” categories). Also, you can refer to your notebook from previous math classes if you need additional help.

Below, show work to indicate how you got your answer; do so without the use of a calculator.

Solving Equations

1. $-\frac{3}{5}x = \frac{12}{5}$

2. $\frac{2x}{5} - \frac{5}{3} = \frac{x}{15}$

Simplifying Expressions – Perform the Indicated Operation

3. $(x^2 + 3x - 4) - (3x^2 + 3x + 4)$

4. $(3x^2y)(-4xy^3)$

5. $\frac{6x^3}{2x}$

6. $\left(\frac{2x^2}{3y}\right)^3$

7. $(2x - 3)(3x + 1)$

8. $-3x(2x^3 - 5x^2 + x - 1)$

9. $(2x + 3)^2$

Simplifying Radicals

10. $\sqrt{48}$

11. $\sqrt{x^7}$

12. $\sqrt{a^8}$

13. $\sqrt{x^3y^4z}$

14. $\sqrt{8x^4y^2}$

15. $\frac{\sqrt{75}}{\sqrt{3}}$

16. $\frac{1}{\sqrt{3}}$

Coordinate Geometry

17. Graph these lines:

a. $2x + 5y = 10$

b. $y = -\frac{2}{3}x + 1$

18. Find the slope:

a. $y = 2x + 5$

b. through $(3, 1)$, $(-2, 4)$

19. Find the equation of each line:

a. the slope is 2, the y-intercept is -3

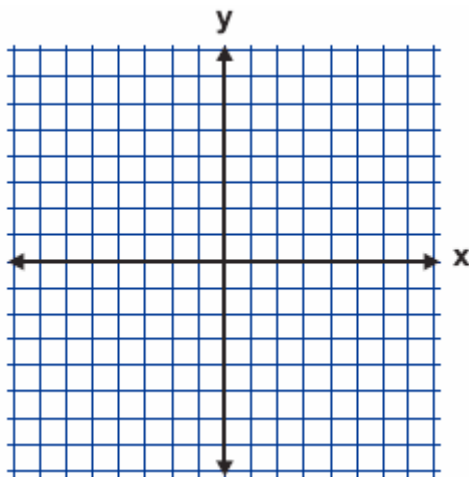
b. $m = \frac{1}{2}$, the line goes through the point $(-2, 3)$

Solving Systems

20. By Graphing

$$y = -x + 3$$

$$x - y = 1$$



21. By Substitution

$$y = 2x - 5$$

$$-x + 3y = 5$$

22. By Substitution

$$x + 2y = 6$$

$$2x + 6y = 5$$

23. By Elimination

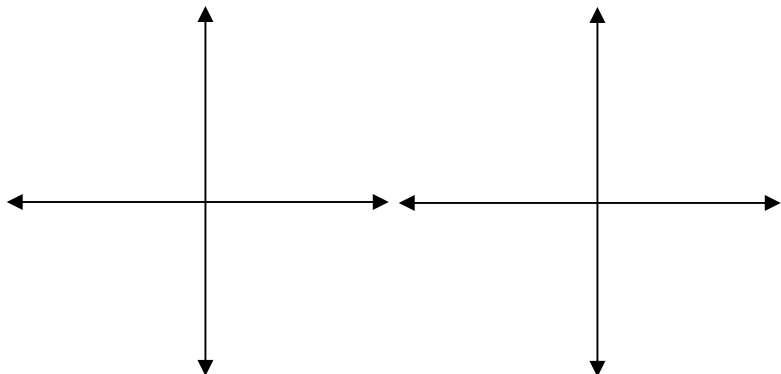
$$x + y = 8$$

$$-x + 2y = 7$$

24. By Elimination

$$2x + 5y = 10$$

$$3x + 4y = 12$$



Factoring – Factor each problem completely

25. $x^3 - 3x$

26. $x^2 - 7x + 10$

27. $4x^2 - 4x - 15$

28. $3x^2 + 2x - 5$

29. $x^2 + 19x + 60$

30. $x^2 - 5x - 6$

Trigonometry (you may use a calculator on the trigonometry problems)

31. If $\sin A = .6820$, find the measure of A . (round answer to nearest tenth)

32. If $\cos A = .6820$, find the measure of A . (round answer to nearest tenth)

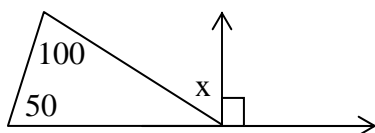
33. A ramp leaning against a wall makes an angle of 12° with the level ground. If the ramp measures 19 feet, how far away is the bottom of the ramp from the bottom of the wall?
(Express answer to the nearest tenth of a foot)

34. A wire attached to the top of a pole reaches a stake in the ground 20 feet from the foot of the pole and makes an angle of 58° with the ground. Find to the nearest foot the length of the wire.

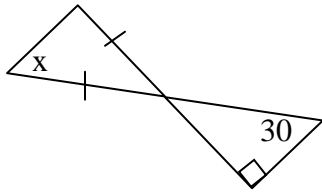
35. The top of a 40-foot ladder touches a point on the wall that is 36 feet above the ground. Find to the nearest degree the measure of the angle that the ladder makes with the wall.

Geometry

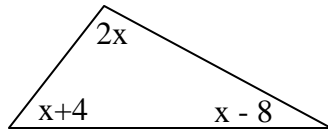
36. Find x .



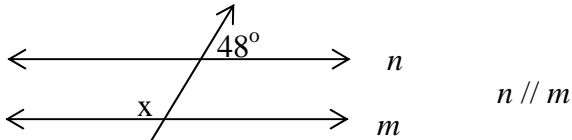
37. Find x .



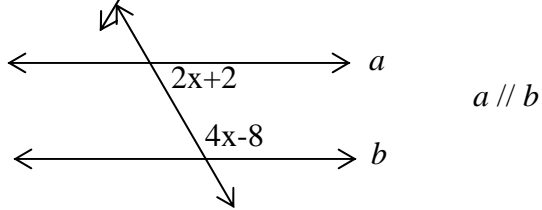
38. Find x .



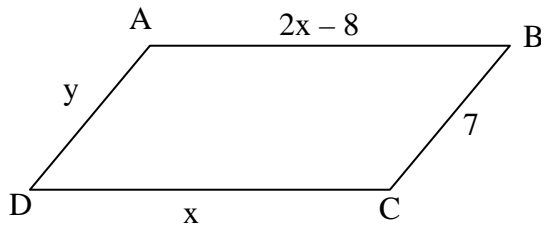
39. Find x .



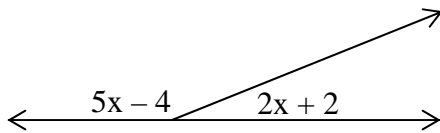
40. Find x .



41. Find the perimeter of \square ABCD .

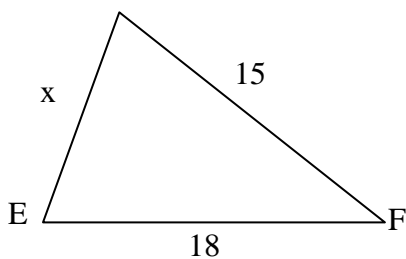
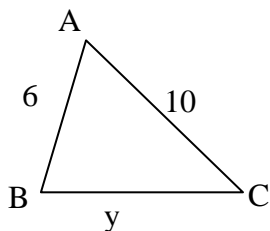


42. Find x .



43. The length of the side of a rectangle is 16" and the perimeter of the rectangle is 48". Find the width of the rectangle.

44. Find the area of a triangle whose base is 14'' and whose height is 9''.

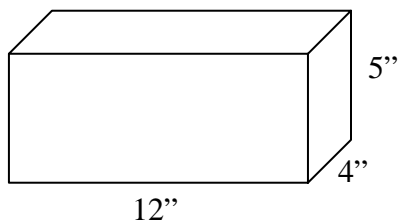


$$\triangle ABC \sim \triangle DEF$$

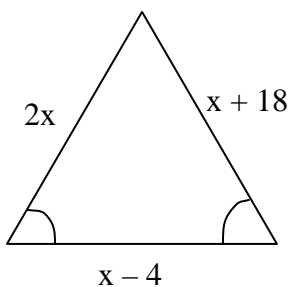
45. Find x.

46. Find y.

47. Find the Volume of the rectangular solid



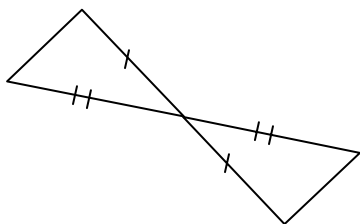
48. Find x.



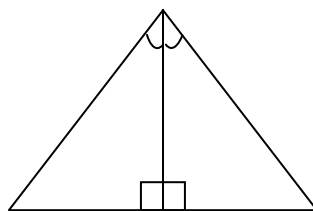
49. The area of a square is 144 square inches. Find the length of a side of the square.

Why are the following triangles congruent? SSS, SAS, ASA, AAS, or HL

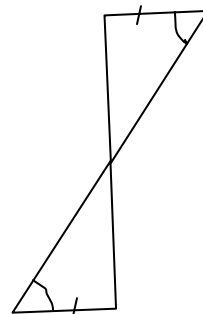
50.



51.



52.



ANSWERS

1. $x = -4$

2. $x = 5$

3. $-2x^2 - 8$

4. $-12x^3y^4$

5. $3x^2$

6. $\frac{8x^6}{27y^3}$

7. $6x^2 - 7x - 3$

8. $-6x^4 + 15x^3 - 3x^2 + 3x$

9. $4x^2 + 12x + 9$

10. $4\sqrt{3}$

11. $x^3\sqrt{x}$

12. a^4

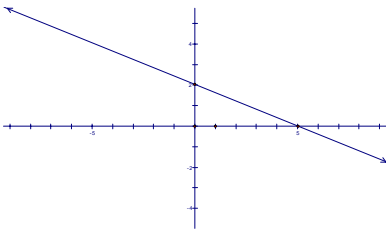
13. $xy^2\sqrt{xz}$

14. $2x^2y\sqrt{2}$

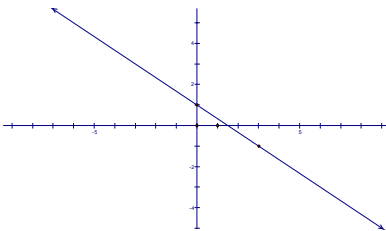
15. 5

16. $\frac{\sqrt{3}}{3}$

17. a)



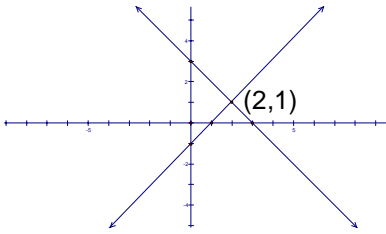
b)



18. a) $m = 2$ b) $m = -\frac{3}{5}$

19. a) $y = 2x - 3$ b) $y = \frac{1}{2}x + 4$

20.



21. (4,3)

22. $\{13, -\frac{7}{2}\}$

23. (3,5)

24. $\{\frac{20}{7}, \frac{6}{7}\}$

25. $x(x^2 - 3)$

26. $(x-5)(x-2)$

27. $(2x-5)(2x+3)$

28. $(3x+5)(x-1)$

29. $(x+15)(x+4)$

30. $(x-6)(x+1)$

31. 43.0°

32. 47.0°

33. 18.6 ft

34. 38 ft

35. 26°

36. 60

37. 60

38. 46

39. 132

40. 31

41. 30

42. 26

43. 8

44. 63

45. 9

46. 12

47. 240 in^3

48. 18

49. 12 in

50. SAS

51. ASA

52. AAS