

Summer Work for Students Entering Advanced Math.
SHOW ALL WORK ON LOOSE LEAF PAPER. NO WORK NO CREDIT!!!

Section 1 Fractions and Decimals

Please simplify the following fractions. Make sure to put into lowest form.

1. $\frac{1}{3} + \frac{1}{3} =$

9. $\frac{3}{7} - \frac{5}{2} =$

2. $\frac{3}{4} + \frac{5}{4} =$

10. $\frac{1}{2} \times \frac{2}{3} =$

3. $\frac{7}{3} - \frac{5}{3} =$

11. $\frac{2}{5} \times \frac{3}{4} =$

4. $\frac{33}{12} - \frac{11}{12} =$

12. $\frac{5}{4} \div \frac{3}{2} =$

5. $\frac{2}{3} + \frac{3}{4} =$

13. $\frac{3}{7} \div \frac{-4}{9} =$

6. $\frac{1}{6} + \frac{1}{2} =$

14. $\frac{-3}{4} \times \frac{4}{5} =$

7. $\frac{4}{5} - \frac{1}{2} =$

15. $\frac{2}{3} \div \frac{1}{2} =$

8. $\frac{7}{3} - \frac{3}{4} =$

Section 2 Integers and Operations

INTEGERS – evaluate the given numerical expression

16 $-6 + 20 + (-8) - (-9)$

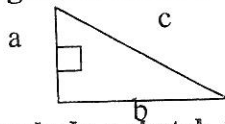
17 $-6(-9)^2$

18 $(-2)^5$

19 Find the mean of the following: $-9, 8, 7, -4, -20, 4, -2, 10, -8, -5$

20 The temperature went from -18° to 35° . What was the change in temperature?

Section 3 Pythagorean Theorem $a^2 + b^2 = c^2$



Remember to include a sketch for each problem.

21. You have a flagpole 30 feet tall. A guy cable is attached to the top of the pole and anchored 10 feet from the base of the pole. How long is the guy cable?

22 You own a rectangular piece of property. The dimensions of the lot are the 135 feet by 200 yards. What is the diagonal distance from one corner to the other in feet? Be careful of your units!

23. Using the above problem, you decide to subdivide the property in half on the long side. What is the new diagonal measurement in feet?

24. You tie a 24 foot rope at certain point on a pole. If you anchor the other end of the rope 6 feet from the base of the pole, how high did you tie the rope to the pole so that the rope is taut (no sag)?

25. A right triangle has a hypotenuse of 15 units. One of the legs is 6 units. What is the length of the other side?

Section 4 The Distributive Property

Using the distributive property, simplify the following expressions:

26. $2(3x + 4)$

27. $3x(2x + 1)$

28. $3.5(2.6x - 3.3y - 2z^2)$

29. $2(4t - 2) + 2$

30. $-3r(r^2 + 3r + 20)$

31. $2(xy^2 - xy) + 3xy$

32. $-x(y^3 + 2.1x + 3y - 12)$

33. $-2(x + 3y - \frac{3}{4})$

Section 5 Ratios and Proportions and Solving Equations

33. Solve the proportion $\frac{x}{4} = \frac{15}{10}$

34. Solve the proportion $\frac{.4}{.3} = \frac{x}{9}$

35. The scale on a map is 1 cm : 50 miles. Determine the distance between cities that are 4.2 cm apart on the map.

36. There were 10 girls and 15 boys in English class.
a.] What is the ratio in simplest form of boys to total students?
b.] What is the ratio of boys to girls?

37. What is the ratio in simplest form of 50 cm to 3 meters? (must be equal units)

38. What is the ratio of 35 yards to 60 inches? (must be equal units)

5b. Solving Equations

39. Solve and check: $28 = m - 6$

40. When a number is decreased by 19, the result is 32. Find the number.

41. Solve: $14 = m + 5$

42. Solve the equation: $\frac{x}{5} = 3$

43. Solve: $2x - |-5| = 23$

44. Solve: $-3n + 12 + n = 22$

45. Solve: $6z + 3 = 8z - 5$

46. Solve: $5x + 14 - 2x = 9 - (4x + 2)$

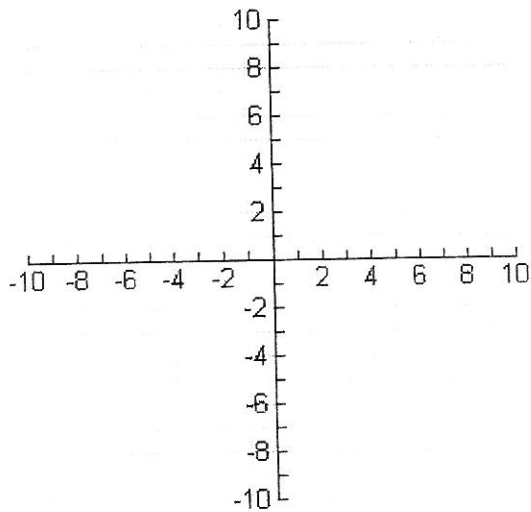
47. Solve: $3x + 17 - 5x = 12 - (6x + 3)$

48. Solve: $x(2x - 1) - 10 = -2x(1 - x)$

49. One video rental club charges \$25 to become a member and \$2.50 to rent each video. Another charges no membership fee, but charges \$3.25 to rent each video. How many videos must you rent to make the first club more economical?

Section 6 Graphs and Functions

50. Locate the points P (4,-3) and Q (-3,4). Join them by a straight line on the x-y axis below.



- At what point does the line intersect the y-axis?
- At what point does the line intersect the x-axis?
- What is the slope of the line?
- What is the equation of the line?

51. Give the domain and range of the relation.

x	y
2	5
8	17
0	0
-3	-5

52. For $f(x) = -5x - 2$, evaluate $f(5)$.

53. Add. Write your answer in standard form.

$$(4a^5 - a^3) + (a^5 + 6a^3 - 4)$$

54. Given $f(x) = 2x^2 + 8x - 4$ and $g(x) = -5x + 6$, find $(f - g)(x)$.

55. Solve the equation $(x - 8)(x + 5) = 0$.