

Directions: Show all work for full credit using a pencil. Circle your final answer.

This assignment is due the first day of school.

Use the summer assignment glossary to look up any words in which you need clarification.

Summer Assignment Glossary

Difference	The answer to a subtraction problem.
Equation	A statement in which two expressions are equivalent.
Expression	A collection of numbers, operations, variables, and grouping symbols.
Like Terms	Terms that have the same variable part such as $3x^2$ and $-5x^2$
Order of Operations	A procedure for evaluating an expression involving more than one operation. Please Excuse My Dear Aunt Sally P – Parenthesis E – Exponents M – Multiplication D – Division A – Addition S – Subtraction
Product	The answer to a multiplication problem.
Quotient	The answer to a division problem.
Sum	The answer to an addition problem.
Variable	A symbol, usually a letter that is used to represent one or more numbers in an algebraic expression.

ROUNDING DECIMALS

Show all work for full credit. A calculator is not permitted for these selected problems.

Examples:

Round to the nearest hundredth: 4.7926

$$47.926 \rightarrow 47.93$$

Find the place value to which you wish to round, and underline it. Look at the digit to the right of the underline. If the digit is right at 5 or greater than 5, add 1 to the underlined digit. If the digit is less than 5, leave the underlined number unchanged.

Round to the nearest tenth.

1. 10.235

2. 8.56

Round to the nearest hundredth.

3. 1.2345

4. 26.5098

Round to the nearest thousandth.

5. 76.00983

6. 5.1477

Round to the nearest dollar.

7. \$34.56

8. \$127.49

ORDER OF OPERATIONS

Show all work for full credit. A calculator is not permitted for these selected problems.

Examples:

$$2^2 + (3+7) \cdot 5$$

$$2^2 + (10) \cdot 5$$

$$4 + (10) \cdot 5$$

$$4 + 50$$

$$54$$

Order of Operations:

1. Parentheses

2. Exponents

3. Multiply] left to right

4. Divide] left to right

5. Add] left to right

6. Subtract] left to right

Follow PEMDAS for order of operation problems. Remember you start by evaluating anything in parentheses first. Then you evaluate anything with any exponent. Next, you do all multiplication and division left to right. Finally, add and subtract left to right.

Simplify.

9. $3^2 + 5 - 10$

10. $(6 + 9) \div 5 - 2$

11. $10 \div 2 \cdot 6 \div 3$

12. $2(7 - 5) + 3 \cdot 4$

13. $17 - 12 + 5$

14. $18 - 3^2 \div 9$

ADDING AND SUBTRACTING FRACTIONS

Show all work for full credit. A calculator is not permitted for these selected problems.

Examples:

If there is a common denominator, add or subtract the numerators. The denominator will remain the same - do not add or subtract the denominator.

$$\frac{1}{7} + \frac{4}{7} = \frac{5}{7}$$

$$\frac{6}{11} - \frac{2}{11} = \frac{4}{11}$$

When the denominators are different, you must change the fractions to have the same denominator. To find the common denominator, find a number that both denominators can go in to. Multiply each fraction to get to that common denominator, then add or subtract as above.

$$\frac{1}{5} + \frac{2}{3} = \frac{3}{15} + \frac{10}{15} = \frac{13}{15}$$

5 & 3 go into 15

$$\frac{3}{4} - \frac{1}{2} = \frac{3}{4} - \frac{2}{4} = \frac{1}{4}$$

4 & 2 go into 4

Add or subtract.

15. $\frac{5}{4} - \frac{3}{4}$

16. $\frac{2}{5} + \frac{4}{5}$

17. $\frac{4}{3} + \frac{3}{2}$

18. $\frac{9}{5} - \frac{5}{8}$

19. $\frac{9}{5} - \frac{4}{3}$

20. $2 - \frac{13}{8}$

MULTIPLYING AND DIVIDING FRACTIONS

Show all work for full credit. A calculator is not permitted for these selected problems.

Examples:

When multiplying, multiply the numerators and multiply the denominators. Reduce.

$$\frac{2}{3} \cdot \frac{4}{5} = \frac{8}{15}$$

$$-\frac{5}{8} \cdot \frac{4}{7} = -\frac{20}{56} = -\frac{5}{14}$$

When dividing, take the reciprocal of the second fraction and change the division sign to multiplication. Reduce.

$$\frac{7}{15} \div \frac{3}{5} = \frac{7}{15} \cdot \frac{5}{3} = \frac{35}{45} = \frac{7}{9}$$

$$3 \div \frac{2}{3} = \frac{3}{1} \cdot \frac{3}{2} = \frac{9}{2}$$

Multiply or divide.

21. $\frac{2}{3} \cdot \frac{5}{4}$

22. $\frac{1}{2} \cdot \frac{2}{7}$

23. $\frac{4}{9} \cdot \frac{7}{4}$

24. $2 \cdot \frac{3}{7}$

25. $\frac{1}{5} \div \frac{7}{4}$

26. $\frac{1}{2} \div \frac{5}{4}$

27. $-\frac{3}{2} \div \frac{10}{7}$

28. $\frac{9}{5} \div 2$

EVALUATE THE EXPRESSION

Evaluate the expression. Simplify all answers. A calculator is not permitted for these selected problems.

Examples:

Plug in the indicated value of x for x and use order of operations to evaluate.

$$2x + 1 \text{ when } x = -3$$

$$2(-3) + 1$$

$$-6 + 1$$

$$\textcircled{-5}$$

$$\frac{1}{2}x + 3 \text{ when } x = 8$$

$$\frac{1}{2}(8) + 3$$

$$4 + 3$$

$$\textcircled{7}$$

29. $7x$ when $x = 5$

30. $\frac{12}{x}$ when $x = 6$

31. $3 + 5x$ when $x = 8$

32. $\frac{3}{2} + x$ when $x = \frac{5}{2}$

33. $1\frac{5}{6} + 2x$ when $x = \frac{1}{6}$

34. $3x^2$ when $x = 4$

COMBINE LIKE TERMS

Simplify the expression by combining like terms. A calculator is not permitted for these selected problems.

Examples

Add or subtract the like terms together by adding or subtracting the coefficients together of the terms that look the same.

$$\underline{2x} + \underline{3x^2} - \underline{5x} + \underline{2x^2}$$

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

$$\textcircled{-3x + 5x^2}$$

$$\underline{2x} - \underline{y} - \underline{6y} - \underline{7x}$$

$$-5x - 7y$$

$$\textcircled{-5x - 7y}$$

35. $5x + 7x$

36. $3x^2 + 2x - 5x^2 + 7x$

37. $6x + 4y - 4x + 3y$

38. $3x + 5 + 10$

39. $3x^2 + 6x + 7 - 2x$

40. $5y - 4y + 2 - 2$

SOLVE THE EQUATION

Simplify the expression by combining like terms. A calculator is not permitted for these selected problems.

Examples

$$5X + 11 = 7X - 9$$

$$11 = 2X - 9$$

$$\frac{20}{2} = \frac{2X}{2}$$

$$X = 10$$

$$4(3X - 5) = -2(-X + 8) - 6X$$

$$12X - 20 = 2X - 16 - 6X$$

$$12X - 20 = -4X - 16$$

$$16X - 20 = -16$$

$$\frac{16X}{16} = \frac{4}{16}$$

$$X = \frac{4}{16} \rightarrow X = \frac{1}{4}$$

41. $x + 4 = 9$

42. $2x - 3 = 7$

43. $6x - 4 = 2x + 10$

44. $x - 30 = 6 - 2x$

45. $2(x + 6) = -2(x - 4)$

46. $-4(3 + x) + 5 = 4(x + 3)$

47. $\frac{7}{2}x - 1 = 2x + 5$

48. $\frac{x}{3} + 2 = 89$

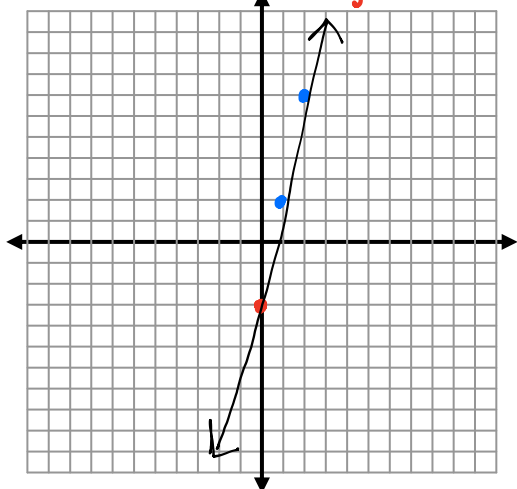
49. $2(x + 2) = 3(x - 8)$

GRAPH THE LINEAR EQUATION

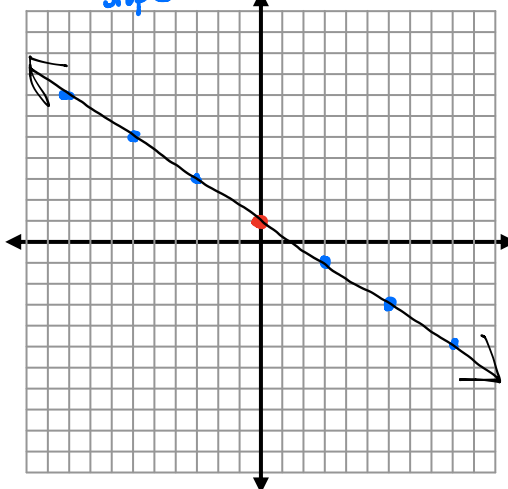
Graph the linear equation. A calculator is not permitted for these selected problems.

Examples

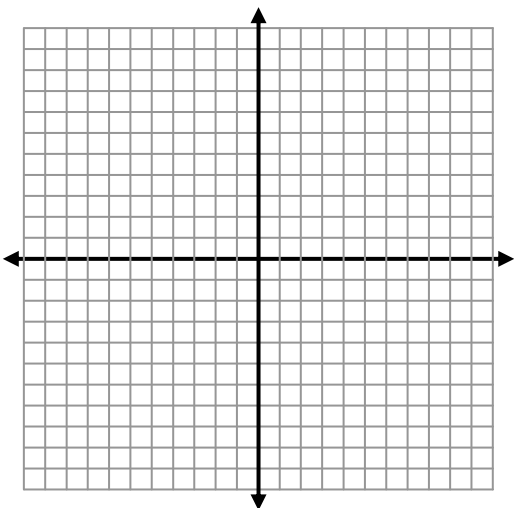
$y = 5x - 3$
slope (blue arrow pointing to 5)
y-int (red arrow pointing to -3)



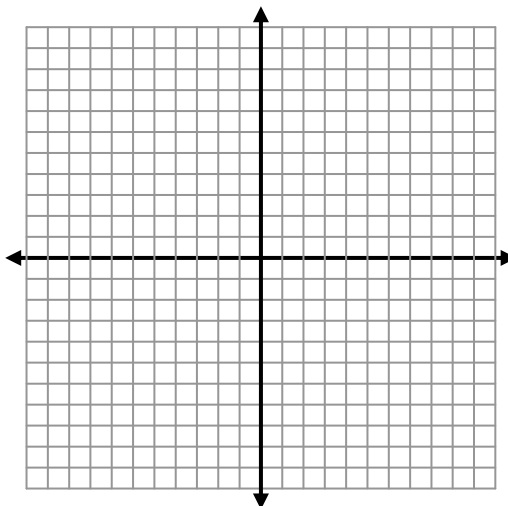
$y = -\frac{2}{3}x + 1$
slope (blue arrow pointing to -2/3)
y-int (red arrow pointing to 1)



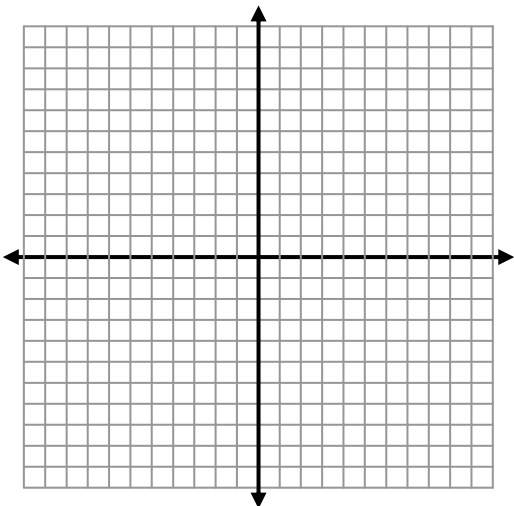
50. $y = 2x + 1$



51. $y = -3x + 5$



52. $y = \frac{1}{2}x - 6$



53. $y = -\frac{4}{5}x - 2$

