Central Tendencies

(Mean, Median, Mode, and Range)

Mean is the sum of the values in a set of data divided by the number of values.

Median is the middle value of a set of data written in ascending order. If there are two middle values, the median is the mean of those values.

Mode is the most frequent value in a set of data.

Range is the difference between the greatest and least value in a set of data.

Exercises:

Find the mean, median, mode, and range of each set of data.

1. 108, 93, 426, 766, 518, 210

2. 21.5, 35.5, 49.5, 16.3, 35.5

Fractions

(Addition, Subtraction, Multiplication, and Division)

Miscellaneous

Write the fractions in lowest terms.

1. $\frac{8}{24}$

2. $\frac{18}{24}$

3. $\frac{15x^2y}{20xy}$

4. $\frac{36abc^4}{45a^3bc^2}$

Solve for x.

5. $\frac{16}{48} = \frac{x}{12}$

6. $\frac{12}{42} = \frac{4}{x}$

7. $\frac{20}{32} = \frac{x}{16}$

8. $\frac{6}{9} = \frac{12}{x}$

Write as improper fractions.

9. $2\frac{1}{3}$

10. $-4\frac{6}{7}$

Write as mixed numbers.

11. $-\frac{9}{4}$

12. $\frac{38}{3}$

Addition and Subtraction

Find each sum or difference. Write your answer in simplest form.

13. $-\frac{2}{3}+\frac{1}{4}$

14. $3\frac{5}{9}+2\frac{1}{6}$

15. $\frac{3}{10}-\frac{4}{5}$

16. $6\frac{7}{10}+\left(-1\frac{1}{5}\right)$

17. $5\frac{4}{11}-2\frac{2}{3}$

18. $2\frac{7}{12}-9\frac{2}{3}$

Multiplication and Division

Find each product or quotient. Write your answer in simplest form.

19. $-\frac{5}{6}\cdot\frac{6}{15}$

20. $-\frac{3}{4}\div\left(-\frac{9}{16}\right)$

21. $2\frac{2}{5}\cdot\left(-3\frac{3}{4}\right)$

22. $-3\frac{3}{4}\div 4\frac{2}{3}$

23. $\frac{2}{9}\cdot\frac{3}{16}\cdot\frac{3}{6}$

24. $6\frac{3}{4}\div 4$

Order of Operations

When several operations are indicated in a numerical expression, proceed in the following order: work within the parentheses, expand each power, multiply and divide (whichever comes first), and finally, add or subtract (whichever comes first).

PEMDAS ("**P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally") is an acronym that provides a good way to remember your order of operation.

P: Parentheses
E: Exponents
MD: Multiply or Divide, whichever comes first
AS: Add or Subtract, whichever comes first

Simplify.

1. $2^4 - 3(3^2 - 8)$

2. $(4^2 + 10)4 - 10(5^2 - 20)$

3. $4^2 - 4(5^2 - 32 \div 8 \cdot 4)$

4. $(8 \cdot 5 \div 10 + 2)(2^5 - 8^2 \div 2)$

5. $5^2 - 3\left[6 + (-2)\left(20 + (-15)\right)\right]$

6. $[4^3 + (-10)(30 - 8 \cdot 5)]$

7. $[15 - 3(4^2 - 10) + 25 \div 5 \cdot 15]$

8. $\{10 - 5[20 - 2(3^2 + 1)]\}$

9. $|-32| + 32$

10. $\frac{48-24\div 2^3}{3+2\cdot 6}$

Find each sum, difference, product, or quotient.

1. $-13 + 19$

2. $37 + (-13)$

3. $-18 + (-29)$

4. $-27 - 93$

5. $-46 - (-32)$

6. $9 - 83$

7. $-45 \div 9$

8. $-84 \div -12$

9. $\frac{132}{-11}$

10. $8(-17)$

11. $-24 \cdot -6$

12. $-62(8)$

13. There is a 6° drop in temperature over the past hour. If it is 55° now, what was the temperature an hour ago?

14. It is $-9°$ now. The temperature will drop 5° in two hours. What will the temperature be in two hours?

Evaluating Expressions and Formulas

To evaluate an expression, first replace the variable by a given value. Then simplify the resulting numerical expression.

Evaluate the expression when $x = -2$ and $y = 5$.

1. $x + y$

2. $x^2 + y^3$

3. $2x - y$

4. $-2(y - 2x)$

5. $\frac{3x-y}{11}$

6. $\frac{x}{3-y}$

Exercises

Solve and check each equation.

1. $-2x + 7 = 25$

2. $3 - 8x = -141$

3. $15 - 2(w + 5) = 11$

4. $12 - 4r = 6r + 2$

5. $-4(n + 5) = -32$

6. $12 - 2x + 5 = -1$

7. $3 - 2x = 15$

8. $\frac{z}{2} - 7 = 12$

9. $17 + 3x = 4x - 9$

10. $-3(6f - 12) = 36 - 18f$

Exercises

Find and graph the solution set of each inequality.

1. $3x + 8 > 17$

2. $-6y + 3 > 9 - 7y$

3. $2v + 7 \geq 11$

4. $7 > 3 + \frac{b}{3}$

5. $\frac{c-2}{3} \leq 4$

6. $4b + 4 < 4(5 - 3b)$

7. $2z - 5 < -21 - 2z$

8. $8b - 10 \geq 6(3 - a)$

9. $3x - 5 > 6x + 13$

1. $7(y + 5) - 10 \leq 2y$

Entering Algebra 1

Simplify each expression.

1) $(1 + 5 - 2) \div (5 - 1)$

2) $(1 - (4 - 4)) \times 6 + 2$

3) $((8 \times 2 - 4) \times 2) \div 6$

4) $15 \div ((4 - 1) \times 1^3)$

5) $2 - \frac{7}{4}$

6) $(-2) - \frac{6}{5}$

Evaluate each using the values given.

7) $x + y + x$; use $x = 1$, and $y = 3$

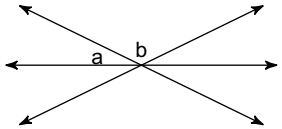
8) $x \div 5 + y$; use $x = 5$, and $y = 5$

9) $2 + 3 + (-1) + 1$

10) $(-4) + (-6) - (-6) - (-1)$

CIRCLE the correct relationship: complementary, supplementary, vertical, adjacent, or corresponding.

11)



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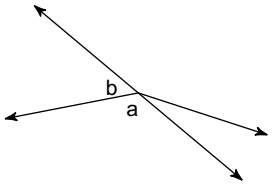
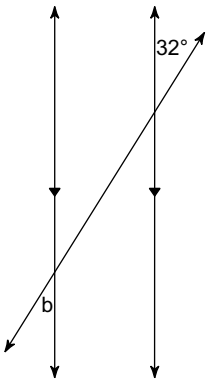


Find the measure of angle b.

13)



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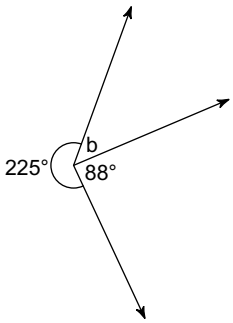
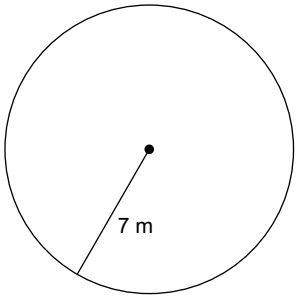


Find the CIRCUMFERENCE of each circle. ROUND TO THE NEAREST WHOLE NUMBER.

15)



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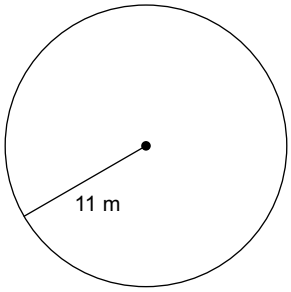
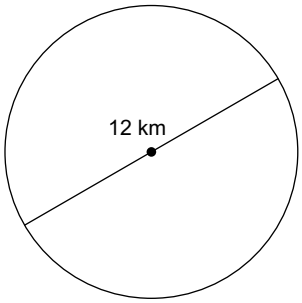


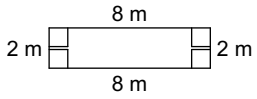
Find the AREA of the circle below. ROUND TO THE NEAREST WHOLE NUMBER.

17)



Find the AREA of each. DO NOT ROUND YOUR ANSWERS.

18)



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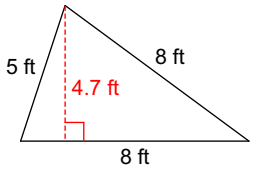


Simplify each expression.

20) $-10k - 8k$

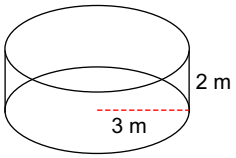
21) $n + 2n$

22) $-6 + 10(-6x + 6)$

23) $9(4 + 10m) - 2(5m + 8)$

Find the VOLUME of the figure. Round to the nearest TENTH.

24)



Write each as a PERCENT. Round to the nearest TENTH of a percent.

25) 0.72

26) 0.5

Write each as a COMPLETELY REDUCED FRACTION.

27) 0.42

28) 0.5

29) $0.\overline{004}$

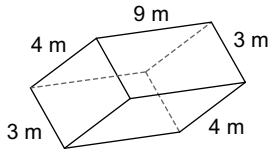
30) $0.\overline{51}$

Simplify the radical expression.

31) $\sqrt{368}$

Find the VOLUME of each figure. ROUND TO THE NEAREST TENTH.

32)



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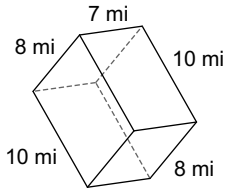
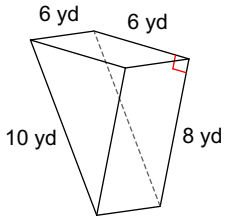


Find the SURFACE AREA of each figure. ROUND TO THE NEAREST TENTH.

34)



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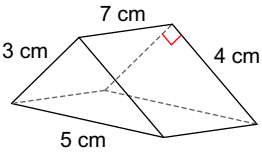


Simplify.

36) $4 \cdot 4^2$

37) $6 \cdot 6^2$

38) $4vu^3 \cdot 7v$

39) $5x^2y^3 \cdot 6yx^2$

Simplify. Your answer should contain only positive exponents.

40) $6x^{-3}$

41) p^{-3}

42) $3n^{-1}$

43) $6v^{-4}$

Solve each equation.

44) $-10 = m + (-14)$

45) $-4 = \frac{10 + m}{2}$

46) $\frac{x}{3} + 10 = 5$

47) $5 + \frac{m}{4} = 0$

48) $-158 = -8(3b + 1) - b$

49) $8(x - 3) = 3(x - 4) + 3$

Solve each proportion.

50) $\frac{8}{b} = \frac{5}{7}$

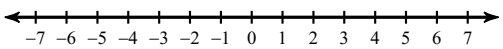
51) $\frac{4}{x} = \frac{9}{4}$

52) Mofor won 48 lollipops playing basketball at the county fair. At school he gave two to every student in his math class. He only has 8 remaining. How many students are in his class?

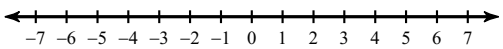
53) How old am I if 400 reduced by 3 times my age is 229?

Draw a graph for each inequality.

54) $m < -5$

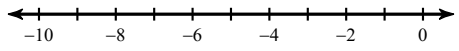


55) $k \geq 4$

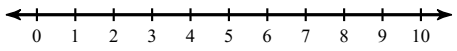


Solve each inequality and graph its solution.

56) $-4 \le -2 + \frac{x}{2}$



57) $2 + \frac{v}{2} < 4$



Find the GCF of each.

58) $40y, 30y$

59) $20v^2, 40v^2$

Find the mode, median, mean, and range for the data set. When necessary ROUND TO THE NEAREST TENTH.

60) Goals in a Hockey Game

3	3	5	7	5	10	5	11
2	7	3					

Simplify. Write each answer in scientific notation.

61) $(4 \times 10^{-2})(5 \times 10^{2})$

Find the final selling price of the item below.

62) Original price of a tie: $22.95
Discount: 50%
Tax: 4%

For the following question, which equation is correct for finding the percent change?

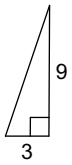
63) From 58 to 93

Answer the following question. Round your answer to the nearest whole number.

64) Four bags of radishes cost $8. How many bags can you buy for $16?

Find the missing length using the Pythagorean Theorem. Leave your answer as a reduced radical expression if necessary.

65)



Solve the proportion.

66) $\frac{3}{7} = \frac{2}{k-2}$

Factor each expression.

67) $-8(4n + 5)$

68) $3(1 + 9n)$

Find each product.

69) $(8x - 1)(6x - 1)$

70) $(2p + 8)(p^2 + 2p + 1)$

Find each product.

71) $(4)\left(\frac{5}{3}\right)$

72) $(2)\left(\frac{4}{9}\right)$

73) $\left(\frac{1}{5}\right)\left(\frac{5}{7}\right)$

74) $\left(\frac{11}{10}\right)\left(\frac{2}{3}\right)$

Find each quotient.

75) $\frac{11}{10} \div \frac{1}{5}$

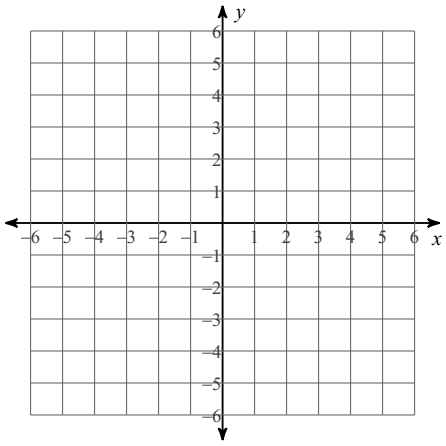
76) $\frac{4}{7} \div \frac{3}{2}$

77) $\frac{6}{5} \div \frac{8}{5}$

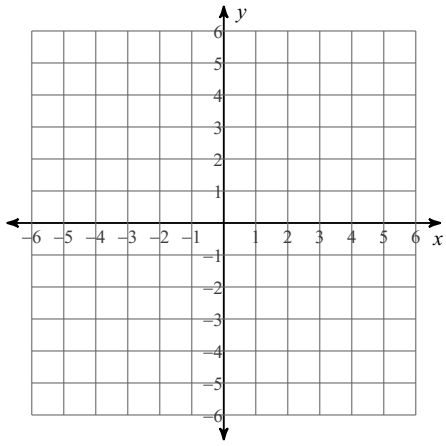
78) $\frac{5}{3} \div \frac{13}{8}$

Sketch the graph of each line.

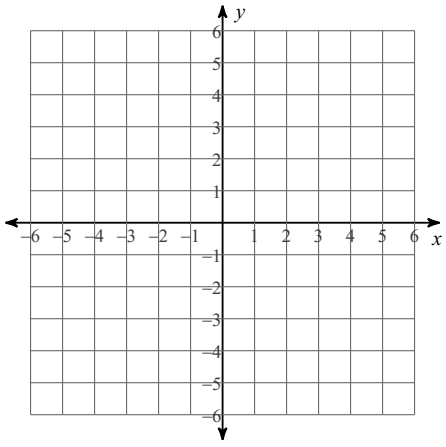
79) $y = -\frac{2}{3}x + 3$



80) $y = \frac{6}{5}x - 3$



81) $x + 3y = 15$



82) $3x - 2y = 6$