

Chapter 2.3 Solving Linear Equations

Review: Solving Linear Equations with the variable on one side of the equation.

Equations -

Solutions -

Method Check the truth of an equation

1.

2.

a.

b.

c.

Solving an Equation -

Method Solving - Variable on one Side

1.

a.

b.

2.

3.

4.

5.

6.

Summary

1.

2.

3.

$$\textcircled{\text{Eg}} \quad 4x - 5 = 22$$

$$\textcircled{1} \quad 3(2x + 6) = 19$$

$$\textcircled{2} \quad 5(3x - 4) + 2(-3x + 2) = 6$$

$$\textcircled{3} \quad \frac{2}{3}x + \frac{5}{6} = 7$$

Method Solving - Variable on Both Sides

1.

a.

b.

2.

3.

4.

a.

b.

5.

b.

(Eg) $3x + 4 = 10x - 14$

① $-3k - 5k - 6 + 11 = 2k - 5$

② $11 + 3(a + 1) = 5a + 16$

SLIDE / SLIME

$$\textcircled{1} x+6=3x-5$$

$$\textcircled{1} 4(2x-6)=3x+7$$

$$\textcircled{2} 3x-2(2x-5)=7x+8$$

$$\textcircled{2} 7x+3(5x-5)-2(2x-3)+$$

$$\textcircled{3} 7x+3(3x-5)=2(2x-9)+7(x+5)$$

$$\textcircled{1} \frac{2}{3}(x+4)-\frac{3}{4}=\frac{5}{6}x$$

$$\textcircled{2} 2-3(2+6z)=4(z+1)+18$$

$$\textcircled{3} \frac{1}{3}x-\frac{5}{12}=\frac{3}{4}+\frac{1}{2}x$$

Decimals as coefficients

$$\textcircled{\text{Eg}} \ .5(2-3x) = 4.5 - .1(x+7)$$

Conditional-

-

-

-

Identities-

-

-

$$\textcircled{\text{Eg}} \ 3(4x-5)+6 = 2(6x+1)-11$$

Contradictions-

-

-

$$\textcircled{\text{Eg}} \ \frac{3}{4}(8x-12) = 5x - (8-x)$$

$$\textcircled{1} 3(2x+5) = 6(x+3) - 3$$

$$\textcircled{2} 2x+7 = 2(3x+5) - 4x$$

Chapter 2.4 Word Problems

Method Solving Word Problems

1.

2.

3.

4.

5.

2.4 Applications of Linear Equations

Eg. If 5 is added to the product of 9 and a number, the result is 19 less than the number.
Find the number.

6. If four times a number is added to 8, the result is three times the number added to 5.
Find the number.

8. If 3 is added to a number and this sum is doubled, the result is 2 more than the number.
Find the number.

10. If 4 is added to twice a number and this sum is multiplied by 2, the result is the same as if the number is multiplied by 3 and 4 is added to the product. What is the number?

Applications

Eg. One Day of their vacation, Annie drove three times as far as Jim. Altogether they drove 84 mi that day. Find the number of miles driven by each.

12. Thursday is the most-watched night for the major broadcast TV networks, with 20 million more viewers than Saturday, the least-watched night. The total for the two nights is 102 million viewers. How many viewers of the major networks are there on each of these nights?

16. The Toyota Camry was the top-selling passenger car in the US in 2000, followed by the Honda Accord. Honda Accord sales were 18 thousand less than Toyota Camry sales, and 828 thousand of these two cars were sold. How many of each make of car were sold?

18. In the 2000-2001 regular baseball season, the Oakland Athletics won 18 less than twice as many games as they lost. They played 162 regular season games. How many wins and losses did the team have?

Using Fractions

Eg. The owner of P.J.'s coffeehouse found that the number of orders for croissants was $\frac{1}{6}$ the number of orders for muffins. If the total number for the two breakfast rolls was 56, how many orders were placed for croissants?

20. The largest sheep ranch in the world is located in Australia. The number of sheep on the ranch is $\frac{8}{3}$ the number of uninvited kangaroos grazing on the pastureland. Together, herds of these two animals number 88,000. How many sheep and how many kangaroos roam the ranch?

22. A husky running the Iditarod (a thousand-mile race between Anchorage and Nome, Alaska) burns $5\frac{3}{8}$ calories in exertion for every 1 calorie burned in thermoregulation in extreme cold. According to one scientific study, a husky in top condition burns an amazing total of 11,200 calories per day. How many calories are burned for exertion, and how many are burned for regulation of body temperature? Round answers to the nearest whole number.

24. In a mixture of concrete, there are 3 lb of cement mix for every 1 lb of gravel. If the mixture contains a total of 140 lb of these two ingredients, how many pounds of gravel are there?

Mixture Problems

Eg. At a meeting of the local computer user group, each member brought two nonmembers. If a total of 27 people attended, how many were members and how many were nonmembers?

26. An insecticide contains 95 cg of inert ingredient for every 1 cg of active ingredient. If a quantity of the insecticide weighs 336 cg, how much of each type of ingredient does it contain?

Eg. A piece of pipe is 50 in long. It is cut into 3 pieces. The longest piece is 10 in. more than the middle-sized piece, and the shortest piece measures 5 in. less than the middle-sized piece. Find the lengths of the 3 pieces.

28. In his job at the post office, Eddie Thibodeaux works a 6.5-hr day. He sorts mail, sells stamps, and does supervisory work. One day he sold stamps twice as long as he sorted mail, and he supervised .5 hr longer than he sorted mail. How many hours did he spend at each task?

30. Nagaraj Nanjappa has a party-length submarine sandwich 59 in. long. He wants to cut it into three pieces so that the middle piece is 5 in. longer than the shortest piece and the shortest piece is 9 in. shorter than the longest piece. How long should the three pieces be?

32. Together, Saturn, Jupiter, and Mars have a total of 36 known satellites (moons). Jupiter has 2 fewer satellites than Saturn, and Mars has 16 fewer satellites than Saturn. How many known satellites does Mars have?

Unit Circle

Degrees

Complementary Angles -

Right Angle -

Supplementary Angle -

Angles

Eg. Find the measure of an angle such that the sum of the measures of its complement and its supplement is 174 degrees.

34. In triangle ABC, the measure of angle A is 141 degrees more than the measure of angle B. The measure of angle B is the same as the measure of angle C. Find the measure of each angle.

42. Find the measure of an angle whose supplement is three times its measure.

44. Find the measure of an angle whose supplement measures 38 degrees less than three times its complement.

46. Find the measure of an angle such that the sum of the measures of its complement and its supplement is 160 degrees.

Consecutive Number problems

Consecutive Integers

Consecutive Even or Odd Integers

Eg. Find two consecutive integers whose sum is -45 .

48. The sum of two consecutive checkbook numbers is 357. Find the numbers.

Eg. Find two consecutive even integers such that six times the smaller added to the larger gives a sum of 86.

50. Find two consecutive odd integers such that twice the larger is 17 more than the smaller.

52. Two houses on the same side of the street have house numbers that are consecutive even integers. The sum of the integers is 58. What are the two house numbers?

54. If five times the smaller of two consecutive integers is added to three times the larger the result is 59. Find the integers.

Mean, Median, Mode - Ap. D

Mean -

Ⓔ Find the mean of the following test scores:
96, 98, 84, 88, 82, 92

Weighted Mean -

Ⓔ Parking ramp charges for 1 month

<u>Parking fee</u>	<u>frequency</u>
\$6	2
\$7	6
\$8	3
\$9	4
\$10	6

Find the average daily parking cost.

Median -

- 1.
- 2.

Ⓔ 82, 84, 88, 92, 96, 98

Ⓔ 6 6 7 7 7 7 8 8 8 9 9 9 9 10 10 10 10 10 10