Algebra RH
Word Problems Practice

ALL WORK SHOULD BE DONE ON A SEPARATE SHEET OF PAPER!

1. The length of a rectangle is 3 less than twice its width. If the perimeter of the rectangle is 18 cm, find the dimensions of the rectangle.

2. Find three consecutive odd integers such that the sum of the smallest and largest is seven less than three times the middle number.

3. Two planes are flying into LaGuardia airport from different directions. Both left at 3 pm. One is flying 30 mph faster than the other. If they started 7500 miles apart and landed at 8 pm, what was the rate of speed of each plane?

4. Spotlight's "Little Mermaid" sold 123 tickets for their Thursday afternoon production. The price of adult admission was $5 and the price of student admission was $3.50. If Spotlight earned $465 from ticket sales, how many of each type of ticket was sold?

5. A car travels west at 45 mph. Two hours later, another car leaves in the same direction traveling 15 mph faster. In how many hours will it take the second car to catch up to the first?

6. Ali has quarters, nickels and dimes that add up to $2.80. She has two more dimes than quarters and the amount of nickels she has is three less than four times the amount of quarters. How many of each coin does she have?

7. Sam and his older brother, Ben, are 6 years apart in age. Four years from now, Ben will be 5 less than triple Sam's age 3 years ago. How old are they now?

8. On Monday, the number of yards I ran was twice that of Wednesday's run and Tuesday's run was 100 yards more than Wednesday's run. If I ran a total of 5300 yards over the three days, how many yards did I run on Monday?

9. A sugar solution was made by mixing 7 ml of a 50% sugar solution and 3 ml of a 80% sugar solution. Find the concentration of the new mixture.

10. Working alone, Carlos can oil the lanes in a bowling alley in five hours. Jenny can oil the same lanes in nine hours. If they worked together how long would it take them?

Answer Key-Word Problems Practice

1. x: width **4cm**

  2x – 3: length **5cm**

  2x + 2(2x – 3) = 18

   2x + 4x – 6 = 18

    6x – 6 = 18

     6x = 24

      x = 4

2. x: 1st consecutive odd int. **5**

  x + 2: 2nd consecutive odd int. **7**

  x + 4: 3rd consecutive odd int. **9**

  x + x + 4 = 3(x + 2) – 7

   2x + 4 = 3x + 6 – 7

   2x + 4 = 3x – 1

    -x = -5

     x = 5

3.   plane A   plane B

  x   x + 30

  5 hrs   5 hrs

  x: rate of plane A   **735mph**

  x + 30: rate of plane B **765mph**

  Dist A + Dist B = Total Dist

   RT + RT = D

  5x + 5(x + 30) = 7500

  5x + 5x + 150 = 7500

   10x + 150 = 7500

    10x = 7350

     x = 735

4.

Tickets	Value	Quantity	Total Value
adult	5	123 - x	5(123 - x)
student	3.50	x	3.50x

  5(123 - x) + 3.5x = 465

   615 - 5x + 3.5x = 465

    615 - 1.5x = 465

     -1.5x = -150

      x = 100

  100 student tickets and 23 adult tickets

5.   A

  ⟵ 45mph

   x: time of car A   8hrs

  B

  ⟵ 60mph

   x - 2: time of car B **6hrs**

  Dist A = Dist B

   RT = RT

   45x = 60(x - 2)

   45x = 60x - 120

   -15x = -120

    x = 8

6.

	Value	#	Tot Val
nickels	5	4x - 3	5(4x-3)
dimes	10	x + 2	10(x+2)
quarters	25	x	25x

  25x + 10(x + 2) + 5(4x – 3) = 280

  25x + 20 + 10x + 20x – 15 = 280

    55x + 5 = 280

     55x = 275

      x = 5

  Ali has 5 quarters, 7 dimes and 17 nickels

7.

	Now	Future (+4)	Past (-3)
Sam	x	x + 4	x - 3
Ben	x + 6	x + 10	x + 3

Future Ben = 3(Past Sam) - 5

$x + 10 = 3(x - 3) - 5$

$x + 10 = 3x - 9 - 5$

$x + 10 = 3x - 14$

$-2x = -24$

$x = 12$

Sam is 12 yrs old and Ben is 18 yrs old

8.   x: number of yards ran on Wed

2x: number of yards ran on Mon **2600yds**

100 + x: number of yards ran on Tues

$x + 2x + 100 + x = 5300$

$4x + 100 = 5300$

$4x = 5200$

$x = 1300$

9.

	%	#	Tot Val
Solution A	.50	7ml	7(.5)
Solution B	.80	3ml	3(.8)
Mixture	x	10ml	10x

$7(.5) + 3(.8) = 10(x)$

$3.5 + 2.4 = 10x$

$5.9 = 10x$

$.59 = x$

The new mixture has 59% of sugar solution.

10.   x = # of hours worked together $\boxed{3\frac{3}{14} \, hours}$

$$\frac{1}{5} + \frac{1}{9} = \frac{1}{x}$$

$$\frac{9}{45} + \frac{5}{45} = \frac{1}{x}$$

$$\frac{14}{45} = \frac{1}{x}$$

$$14x = 45$$

$$x = 3\frac{3}{14} \, hours$$