● Examples:

Find the cost of 875 pounds of beef at $89.00 per cwt. The number of hundreds in 875 is found by dividing 875 by 100 (moving the decimal point 2 places to the left) resulting in 8.75. This quotient (8.75) is then multiplied by $89, the cost for each 100 pounds, making a total of $778.75.

Number of 100's	8.7 5
Cost per cwt	x $ 8 9
	7 8 7 5
	7 0 0 0
Cost of 875 lbs.	$ 7 7 8.7 5

Find the cost of 6,725 wire hangers at $10.25 per M. The number of thousands in 6,725 is found by dividing this number by 1,000 (moving the decimal point to the left 3 places) resulting in 6.725. This quotient is then multiplied by $10.25, the cost of each 1,000, making a total cost of $68.93125, rounded off to $68.93.

Number of 1,000's	6.7 2 5
Cost per M	x $1 0.2 5
	3 3 6 2 5
	1 3 4 5 0
	6 7 2 5 0
	$ 6 8.9 3 1 2 5 --- $68.93

Find the cost of 5,000 pounds of agricultural lime at $14.00 per T. The number of tons in 5,000 lbs. is found by dividing 5,000 by 2,000 (the number of pounds in a ton). First divide by 1,000 by moving the decimal point to the left 3 places and then use short division, dividing by 2, resulting in 2.5 tons. Finally multiply this quotient by $14 making a total of $35.

Number of tons	5,0 0 0 ÷ 2,0 0 0 = 5 ÷ 2 = 2.5
Cost per T	x $1 4
	1 0 0
	2 5
	$ 3 5.0 --- $3 5.0 0

➨ Find the cost of the following items, using the preceding method:

(1) 400 lbs. at $6.69 per cwt _____

(2) 720 lbs. at $6.72 per cwt _____

(3) 8,640 at $135 per M _____

(4) 6,860 at $95 per M _____

(5) 2,000 at $86.15 per M _____

(6) 9,750 at $75.08 per M _____

(7) 225 at $2.40 per C _____

(8) 120 at $2.40 per C _____

(9) 45 lbs. at $9.60 per cwt _____

(10) 3,200 lbs. at $15.20 per T _____

(11) 2,475 lbs. at $10.40 per T _____

(12) 375 at $6.20 per C _____

(13) 5,000 at $.90 per C _____

(14) 4,800 lbs. at $65 per T _____

(15) 1,550 lbs. at $20 per T _____

(16) 875 lbs. at $6.20 per cwt _____

(17) 9,845 lbs. at $12 per T _____

(18) 4,876 at $16 per M _____

(19) 386 at $.47 per C _____

(20) 6,157 at $.01 per C _____

Answer these questions to test your understanding of this section. If you score below 90%, restudy the section. If you score above 90%, you should restudy any areas you did not understand.

CHECKUP

➨ Mentally divide each number by a. 10, b. 100, and c. 1,000; then on the blank, write the correct answer: (each answer, 1 point)

(1)	478	(a) _____	(b) _____	(c) _____
(2)	6,841	(a) _____	(b) _____	(c) _____
(3)	69.43	(a) _____	(b) _____	(c) _____
(4)	832.6	(a) _____	(b) _____	(c) _____
(5)	.005	(a) _____	(b) _____	(c) _____

(6)	91.47	(a)	_____	(b)	_____	(c)	_____
(7)	647.3	(a)	_____	(b)	_____	(c)	_____
(8)	6.697	(a)	_____	(b)	_____	(c)	_____
(9)	99.9	(a)	_____	(b)	_____	(c)	_____
(10)	310	(a)	_____	(b)	_____	(c)	_____

➡ Mentally divide each number by a. 20, b. 300, and c. 5,000; then on the blank, write the correct answer: (each answer 1 point)

(11)	480	(a)	_____	(b)	_____	(c)	_____
(12)	6,120	(a)	_____	(b)	_____	(c)	_____
(13)	13.65	(a)	_____	(b)	_____	(c)	_____
(14)	.006	(a)	_____	(b)	_____	(c)	_____
(15)	733.5	(a)	_____	(b)	_____	(c)	_____
(16)	9.15	(a)	_____	(b)	_____	(c)	_____
(17)	60.06	(a)	_____	(b)	_____	(c)	_____
(18)	.018	(a)	_____	(b)	_____	(c)	_____
(19)	7,800	(a)	_____	(b)	_____	(c)	_____
(20)	424.2	(a)	_____	(b)	_____	(c)	_____

➡ Mentally divide each number by a. .01, b. .2, and c. .03; then on the blank, write the correct answer: (each answer 1 point)

(21)	57.36	(a)	_____	(b)	_____	(c)	_____
(22)	.036	(a)	_____	(b)	_____	(c)	_____
(23)	2.418	(a)	_____	(b)	_____	(c)	_____
(24)	.0006	(a)	_____	(b)	_____	(c)	_____
(25)	684	(a)	_____	(b)	_____	(c)	_____

➡ Find the cost of these items: (each answer, 5 points)

(26) 200 lbs. @ $8.47 per cwt _____

(27) 5,600 @ $7.20 per M _____

(28) 684 @ $12.30 per C _____

(29) 614 @ $58 per M _____

(30) 7,900 lbs. @ $12.50 per T _____

Score = 100
My Score = ____

"He divided the sea, and caused them to pass through; and he made the waters to stand as an heap." Psalms 78:13

V. COMPUTING AVERAGES

If a customer purchases several articles of the same kind at different unit prices, he may wish to know the average price he paid for them. This computation is one of the many ways that averages may be used in everyday life. An employer may wish to know the average sales made by each of his clerks, or a businessman may want to know the average cost of an article over a period of time. Averages are all around us: average income, average weight, average size, batting average, average temperature, average grades in school, average daily sales.

An *average* is *a single number that is used to represent a group of numbers.* A simple average is the quotient obtained by adding several numbers and dividing their sum by the number of items added.

● Example:

During the last week, Mrs. Smith bought three boxes of crackers. She paid 47¢ for the first box, 48¢ for the second box, and 52¢ for the third. What was the average price per box?

```
  $ .4 7
    .4 8
   .5 2
$1.4 7  - cost of 3 boxes

      $ .4 9   average price
3 ) $1.4 7
```

● Example:

A waitress worked five days and her tips were $16.20, $15.80, $17.50, $14.40, and $20.10. What was the average of her daily tips?

```
$1 6.2 0
 1 5.8 0
 1 7.5 0
 1 4.4 0
 2 0.1 0
$8 4.0 0  - tips for 5 days

      $1 6.8 0   - average daily tips
5 ) $8 4.0 0
```

● Example:

A grass-seed mixture contains 100 lbs. of seed costing $.80 per pound, 60 lbs. costing $1.40 per pound, and 40 lbs. at $1.90 per pound. What is the average cost per pound of the mixture?

100 lb. @ 80¢	$8 0.0 0
60 lb. @ $1.40	8 4.0 0
40 lb. @ $1.90	7 6.0 0
200 lb.	$2 4 0.0 0

2 4 0 ÷ 2 0 0 = $1.2 0

As shown in the last example, if the quantity purchased at a given price is more than one unit, multiply each unit price by the quantity at that price. Then divide the sum of these products by the sum of the quantities. Such an average is called a *weighted average.*

➨ Find these averages:

Work Space

(1) Sam bought one dozen cookies at 50¢ a doz., one dozen at 53¢ a doz., and a third dozen at 62¢. What was the average cost per dozen?

(2) Mrs. Benson kept a record of her food purchases for the month of August. The first week she spent $45.69, the second week $54.23, the third week $62.78, and the fourth week $58.42. What was her average food cost per week?

(3) On his first 4 weekly tests in math, Ray's average grade was 85. On the 5th test, his grade was 90 and on the sixth, 86. What was his average grade on the six tests?

(4) While on vacation, Johnson's gasoline purchases were 10 gal. @ 55.5¢ per gal., 10 gal. @ 56.9¢ per gal., 8 gal. @ 57.5¢ per gal., 14 gal. @ 57.5¢ per gal., and 14 gal. @ 54¢ per gal. What average price per gallon to the nearest tenth of a cent did he pay for gasoline?

Work Space

(5) Find the total sales for six weeks of a salesperson whose weekly sales averaged $924.25.

(6) Find the average yearly salary when David earned the following amounts in 5 years: $12,720, $12,910, $13,075, $13,240, and $13,350.

(7) During a charity drive, the 2,374 employees of R. C. Bond and Co. contributed $8,695.48. What was the average contribution of each employee?

(8) Last week Mrs. Law, who operates a restaurant, bought one dozen grapefruit @ 87¢, one dozen @ 80¢, and one dozen @ 85¢. Find the average cost per dozen.

(9) During the winter, Ralph Grew purchased 5 tons of coal @ $22.40, 4 tons @ $24.20, and 2 tons @ $23.85. Find to the nearest cent the average cost per ton.

(10) During one week, a newsboy's daily profits were $1.26, $1.80, $1.35, $1.08, $2.29, and $1.16. What was his daily average profit?