

AGRICULTURAL SUPPLEMENT

TO

MILNE'S PROGRESSIVE ARITHMETIC

SECOND BOOK

NORTH CAROLINA EDITION

PREPARED BY

E. C. BROOKS

PROFESSOR OF EDUCATION, TRINITY COLLEGE, NORTH CAROLINA

AND

I. O. SCHAUB

FORMERLY DIRECTOR OF THE BOYS' CORN CLUB, RALEIGH, N.C.

*William H. T. ...
1028 W. H. R.
Rush M.
Burkham*

AMERICAN BOOK COMPANY

NEW YORK

CINCINNATI

CHICAGO

AGRICULTURAL SUPPLEMENT FOR NORTH CAROLINA

Prepared by E. C. BROOKS, Professor of Education, Trinity College, Durham, N. C., and I. O. SCHAUB, formerly director of the Boys' Corn Club, Raleigh, N. C.

INTRODUCTION

THIS "Agricultural Supplement" has been compiled for the schools of North Carolina, at the suggestion of Hon. J. Y. Joyner, State Superintendent of Public Instruction. In the preparation, the authors have sought to call special attention to (1) the business side of farming, (2) the value of good farming, (3) the advantage of spraying orchards, (4) the cost of keeping domestic animals, (5) the use of fertilizer, (6) land measurements, (7) the cost and value of good schools and good roads, and (8) general farm statistics.

Students should study this supplement after they have acquired the use of the fundamental operations in arithmetic, and after their reasoning powers have developed to the extent that they can see the relation of these problems to their agricultural life. The wise teacher will be able to supplement these problems and bring into the schoolroom other problems that relate the work of the schoolroom more closely to the business needs of the community. In this way the arithmetic of the school will be of direct value, not only to the pupils, but to the patrons of the district.

PROBLEMS IN INVENTORIES

NOTE. — Throughout this supplement, unless otherwise specified, inexact final results should be given to the nearest cent or to the nearest hundredth of whatever unit is called for, 5 mills or more being counted as an extra cent and .005 or more as an extra hundredth.

1. The average sized farm in North Carolina is about 90 acres. If it is divided into 20 acres of timber land and 70 acres of cleared land, there is enough cleared land for a well-cultivated four-horse farm. Find the total investment as shown by the following inventory :

90 acres of land, including all buildings, at \$40 per acre	\$ ———
3 mules at \$225 each	—————
1 horse	250.00
1 wagon	80.00
1 buggy	75.00
All harness	75.00
1 two-horse cultivator	40.00
2 one-horse cultivators, \$7.50 each	—————
1 disk harrow	25.00
1 smoothing harrow	15.00
1 disk plow	35.00
All other plows	30.00
All other farm implements	75.00
2 milch cows, \$50 each	—————
3 hogs, \$10 each	—————
60 chickens, 30 ¢ each	—————

2. Find the value of the returns from the farm as follows :

30 bales of cotton, 500 pounds each, at 12 ¢ a pound	\$ ———
15 tons of cottonseed at \$20 a ton	—————
750 bushels of corn at 80 ¢ a bushel	—————
15 tons of hay and forage at \$1.00 a hundred pounds	—————
600 pounds of meat at 12½ ¢ a pound	—————
Milk, butter, chickens, and eggs	200.00
Home for family, equal to a rental of \$12.50 a month	—————
20 cords of wood at \$2.50 a cord (home use)	—————
Fruits and garden vegetables consumed	100.00

(Substitute wheat or tobacco for cotton, according to location.)

3. What was the farmer's total expense, not counting his own labor, as follows :

6% interest on total amount invested, \$5138	\$ _____
Taxes	25.52
Insurance on buildings	15.00
20 tons of fertilizer at \$22.50 per ton	_____
Regular farm labor	400.00
Extra labor for field work and picking cotton	375.00
Repairs on buildings and fences	100.00
Wear and tear on machinery, etc.	<u>155.00</u>

4. How much does the farmer receive for his services ?

5. If he should leave the farm and hire out for wages, how much must his salary be per day, not counting Sundays, in order that he may receive the same amount of money during the year? (Count 300 working days as one year.)

6. With the help of your father, make an inventory of the farm on which you live.

7. With the help of your father, estimate the total value of the receipts from the farm.

8. Estimate the total expenses on the farm outside of labor done by the family.

9. How much was received for labor done by the family ?

PROBLEMS IN GOOD FARMING

1. If in a field that produces 56 bu. of corn, 1 out of every 15 stalks is barren, while the other stalks bear 1 ear each, how much would the field produce provided every stalk had a full ear?

2. A ten-acre field planted to corn two years in succession gave a total yield for the two years of 575 bu. Another ten-acre field of the same fertility, planted the first year in crimson clover and the next year in corn, produced 15 T. of clover hay and 450 bu. of corn. If clover hay is worth \$15 a ton

and corn 70 cents a bushel, which system of farming is more valuable and how much more?

3. An acre of good land sowed in good wheat will produce 15 bu. to the acre; but the same land sowed in poor wheat will yield only 10 bu. to the acre. How much will be gained on 5 A. by sowing good wheat?

4. The good wheat will make about 45 lb. of flour for every bushel, while the poor wheat will make only 34 lb. to the bushel. How many barrels of flour will be saved on the 5 A. by sowing good wheat, if it takes 196 lb. of flour to make a barrel?

5. A and B each planted 5 A. of equal fertility in corn. A practiced good farming while B practiced poor farming. Their expenses were as follows:

	A	B
Rent	\$10	\$10
Preparation of seed bed	15	10
Seed	2	.70
Fertilizer	30	20.00
Cultivation	<u>10</u>	<u>6.00</u>

A produced 225 bu. of corn, while B produced 115 bu. How much more did A clear than B, if corn was selling at 80¢ a bushel?

6. Good seed corn properly selected in the field and put away in a dry place until planting time will yield 7% more than seed corn selected from the crib in the spring. If the crib corn produces only 20 bu. to the acre, how much can be gained on 10 A. by selecting the seed earlier and putting it away until planting time?

7. If green cowpeas plowed under on a 50-acre field in the early fall increase the yield of cotton 50%, and the cotton crop was originally 300 lb. to the acre, what is the value of such plowing to the farmer when cotton sells for 12¢ a pound, and the increase in the value of the cottonseed amounts to \$135?

8. Ten rows planted in light cottonseed produced 460 lb. of seed cotton, while the same number of rows planted in heavy seed produced 540 lb. What per cent greater was the yield from the heavy seed? What was the amount gained, if seed cotton was selling for $3\frac{1}{2}$ ¢ a pound?

NOTE. — Carry the result to the nearest hundredth of a per cent.

9. If 40 such rows make an acre, how many more pounds of seed cotton can be raised on an acre by using good heavy seed than by using light seed?

PROBLEMS IN SPRAYING

1. A certain apple tree bears 3000 apples, but $\frac{1}{2}$ of them drop off and $\frac{1}{4}$ of the remainder are wormy. How many good apples does the tree bear? If the tree is sprayed to prevent worms, only about $\frac{1}{10}$ of the 1500 apples will be wormy. How many apples are saved by the spraying?

2. It costs on an average 25¢ to keep an apple tree thoroughly sprayed during its bearing season. What is the gain, if the tree bears 8 bu. more by the spraying, when apples sell for 90¢ a bushel?

3. A farmer sprayed an acre of potatoes three times and received a yield of 35 bu. He sprayed another acre five times and received a yield of 65 bu. If the increased yield was due to the extra sprayings, how much were the last two sprayings worth to the farmer, potatoes selling at 75¢ a bushel?

4. Bordeaux mixture consists of 1 lb. of bluestone and 1 lb. of lime for every 10 gal. of water. It requires 150 gal. of this mixture to spray an acre of potatoes. How many pounds of bluestone and lime together will be required?

5. Seed oats are treated with formalin in order to prevent oat smut. It requires 1 oz. of formalin for every $2\frac{1}{2}$ gal. of water, and a gallon of this mixture is used for every bushel

of seed oats. How many ounces of formalin are necessary to treat the seed oats sufficient to sow 10 A., if the farmer sows 3 bu. to the acre?

6. If the treatment in Exercise 5 will cause each of the 30 bu. of seed to produce 11 bu. of oats, when without treatment it would have produced 9 bu., what was the value of the increased yield when oats are worth 60¢ per bushel?

PROBLEMS DEALING WITH DOMESTIC ANIMALS

1. A daily ration for a horse is 10 lb. of hay and 12 lb. of oats. Exactly how many pounds of hay and how many bushels of oats (32 lb. of oats = 1 bu.) are required to keep a horse for one year of 365 da.?

2. Another daily ration for a horse is 10 lb. of hay and $12\frac{1}{2}$ lb. of shelled corn. How many bushels of corn are required for this ration for a year of 365 da., if it takes 56 lb. of corn to make a bushel?

3. How much does it cost to keep a horse a year of 365 da. when fed on the first ration, and when fed on the second ration, if hay is worth \$1.00 a hundred pounds, corn 60¢ a bushel, and oats 50¢ a bushel?

4. If it costs A \$6 a month of 30 da. to keep a cow that gives 1 gal. of milk a day, and B \$9 a month to keep a cow that gives $2\frac{1}{2}$ gal. of milk a day, how much does a gallon of milk cost each?

5. Suppose A and B each wishes to sell enough milk at 6¢ a quart to pay for keeping the cow. How many quarts must each sell a day? How many quarts a day will each have for his own use? (Give exact answers.)

6. If 1 A. of peanuts and 40 bu. of corn produce a gain of 1450 lb. in hogs that sell for $6\frac{1}{2}$ ¢ a lb. what is the value of an acre of peanuts for hog feed, corn being worth 60¢ a bushel?

7. If 1 bu. of corn fed to pigs produces $12\frac{1}{2}$ lb. of gain in flesh, what exact price does the farmer get for his corn when pigs sell at $6\frac{1}{2}$ ¢ a pound?

8. A farmer was offered two samples of cottonseed meal. Number 1 contained 41 % of protein and cost \$26 per ton, while number 2 contained 38.61 % protein and cost \$25 per ton. Making no allowance for other ingredients, how much, to the nearest hundredth cent, does the protein cost per pound in each sample?

9. A merchant in Winston-Salem sold foodstuffs. When a farmer asked for cottonseed meal, he gave him a sack of goods labeled "Cotton Seed Feed" containing 24.5 % protein. He charged him \$1.25 per 100 lb. Making no allowance for other ingredients, how much did the farmer lose on 500 lb. when cottonseed meal analyzing 38 % protein could have been purchased at \$24 per ton?

10. One of the cows at the Agricultural and Mechanical College gave, during 1912, 10,722 lb. of milk, that contained 5.07 % of butter fat. If butter fat was worth 30 ¢ per pound, what was the income from the butter fat?

11. If, in a year, a cow gives 9417 lb. of milk that is sold at 8 ¢ a quart, how much is received for this milk? (One gallon of milk weighs 8.6 lb.)

FERTILIZERS

Fertilizers are used to supply plant food for the growing crop, and are valuable according to the kind and quantity of the plant food they contain. The three things for which we usually purchase the fertilizer are nitrogen, phosphoric acid, and potash. The fertilizers may contain one or all three of these plant foods in varying amounts. The amount contained is usually expressed in per cent printed on the sack or on a tag attached to the sack. Fertilizer should be purchased on the

basis of the plant food it contains and not on the reputation of any brand.

1. The most common fertilizer used in the state contains 2% nitrogen, 8% phosphoric acid, and 2% potash. It is usually called 2-8-2 goods. How many pounds of each, in the order named, are contained in 200 lb. of fertilizer?

2. How many pounds of nitrogen, phosphoric acid, and potash are contained in 1000 lb. of 2-8-2 fertilizer?

3. How many pounds of nitrogen, phosphoric acid, and potash are contained in one ton of 2-8-2 fertilizer?

4. How much of each plant food is there in 500 lb. of a fertilizer analyzing 3-8-3?

5. The nitrogen in fertilizer is usually obtained from nitrate of soda, cottonseed meal, fish scrap, dried blood, or tankage. How much nitrate of soda analyzing 15.8% nitrogen will be required to furnish the nitrogen in 1000 lb. of a fertilizer containing 2% nitrogen?

6. How much nitrate of soda analyzing 15.8% nitrogen will be required to furnish the nitrogen in 1000 lb. of a fertilizer containing 3% of nitrogen?

7. How much cottonseed meal containing 6.5% nitrogen will be required to furnish 20 lb. of nitrogen? 30 lb.?

8. How much acid phosphate containing 16% phosphoric acid is required to furnish 160 lb. of phosphoric acid? 40 lb.?

9. Exactly how much muriate of potash analyzing 48% potash is required to furnish 40 lb. of potash? 15 lb.?

10. How much kainit analyzing 12.5% potash is required to furnish 40 lb. of potash? 15 lb.?

11. How many pounds of each of the three ingredients, nitrate of soda (15.8% nitrogen), acid phosphate (16% phosphoric acid), and muriate of potash (48% potash), are necessary

to furnish the plant food in one ton of 2-8-2 fertilizer? (See Ex. 1.) What is the total weight of the three ingredients?

NOTE.—The difference between the weight of these materials and 2000 lb. is the amount of “filler” that the manufacturer puts in to make the low-grade fertilizer. These materials furnish all the plant food, but in order to sell a ton for a small amount, the manufacturer adds dirt or some other ingredient containing no plant food.

12. Get from your nearest fertilizer dealer his price of a ton of 2-8-2 and also of the separate materials, nitrate of soda, acid phosphate, and potash necessary to furnish the same amount of plant food. Which costs more, the ready mixed fertilizer or the separate ingredients? Will the difference in cost repay you for doing your own mixing?

13. Make the same calculations on a 3-8-3 and a 4-8-4 fertilizer.

14. If the plant food in one ton of 2-8-2 fertilizer, namely, 253.16 lb. of nitrate of soda (15.8% nitrogen), 1000 lb. of acid phosphate (16% phosphoric acid), and 83.33 lb. of muriate of potash (48% potash) are mixed together, without filler, what per cent each of nitrogen, phosphoric acid, and potash will there be in the mixture? (Carry results to the nearest hundredth per cent.)

SUGGESTION.— $253.16 \text{ lb.} \div 1336.49 \text{ lb.} = 18.94\%$ of nitrate of soda; $15.8\% \text{ of } 18.94\% = 2.99\%$ of nitrogen. Proceed in the same way with the other ingredients.

15. Corn stover contains .8% of nitrogen. If the stalks are burned, the nitrogen passes into the air and is lost. How much cottonseed meal (6.5% nitrogen) will be necessary to replace the nitrogen lost when 1 ton of stalks is burned?

16. Tennessee phosphate rock contains 32% phosphoric acid and costs \$8 per ton delivered in North Carolina. In making acid phosphate, 1 ton of Tennessee rock is added to 1 ton

of sulphuric acid, the mixture analyzing 16% phosphoric acid, and selling at about \$15 per ton. What is the exact cost per pound of the phosphoric acid in the rock and in the acid phosphate?

17. Mr. Jones has \$30 to spend for fertilizer containing phosphoric acid. How many pounds of phosphoric acid will he get, if he buys Tennessee rock? how many, if he buys acid phosphate?

18. A farmer can sell his cottonseed at \$1 per 100 lb. and can buy cottonseed meal at \$25 per ton. If 963 lb. of meal are equivalent to 1 ton of seed for fertilizing purposes, how much will he gain or lose when he sells 1 ton of seed and with the money buys cottonseed meal for fertilizer?

PROBLEMS IN MEASUREMENTS

1. It is found that the volume of 1 bu. of wheat is approximately $1\frac{1}{4}$ cu. ft. How many bushels of wheat will just fill a box that is 4 ft. long, 4 ft. wide, and 5 ft. deep?

2. It is estimated that 400 cu. ft. of hay make 1 T. How many tons of hay are there in a mow 10 ft. long, 8 ft. wide, and 20 ft. high? What decimal part of a year will this hay last 5 horses, if each horse eats $1\frac{2}{3}$ T. a year?

3. A mow of hay is 20 ft. long, 10 ft. wide, and 20 ft. high. How long will this hay last 3 horses, if each horse eats $1\frac{2}{3}$ T. a year?

4. An acre contains 4840 sq. yd. If a field of 1 acre is 88 yd. long, what is its width?

5. A man plowing full time can plow $1\frac{1}{2}$ A. a day. How much should be paid for plowing a piece of land 110 yd. long by 44 yd. wide, at the rate of \$1.50 for a full day's work.

6. If an acre is 20 rd. long, what is its width?

7. A man has a field 300 yd. long, and 250 yd. wide. How many acres, to the nearest tenth, are there in the field?

8. A man had a field 275 yd. long east and west and 150 yd. wide north and south. He dug a ditch from the southwest corner to a point on the northern side 125 yd. from the northwest corner. How many acres did he have on each side of the ditch?

9. How many square feet are there in 1 A.? in $\frac{1}{10}$ of an acre?

10. A girl's tomato plat is 44 ft. wide. How long should it be to contain $\frac{1}{10}$ of an acre?

11. A girl wished to plant $\frac{1}{10}$ of an acre in tomatoes, but by mistake planted a field 120 ft. by 45 ft. Did she have more or less than $\frac{1}{10}$ of an acre, and how much more or less?

12. She produced 1500 cans of tomatoes on her plat. How many did she get from $\frac{1}{10}$ of an acre?

13. How many miles will a man travel in plowing 1 A. of land 363 ft. long and 120 ft. wide with a one-horse plow, if he cuts a furrow 9 in. wide?

14. Exactly how many miles will a man travel in plowing the same land with a two-horse plow cutting 16 in., the furrows running lengthwise?

15. How many acres can a man plow in 10 hr. with a one-horse plow, if he travels 11 mi. for each acre on an average of 2 mi. per hour, including the turns?

16. How many acres will a man plow in 10 hr. with a two-horse plow, if he travels $6\frac{3}{16}$ mi. for each acre at the rate of 2 mi. per hour, including the turns?

17. Allowing 10¢ per hour for the man and 5¢ per hour for each horse, what is the exact cost of plowing per acre with a one horse-plow? with a two-horse plow?

18. A man has a field 161 yd. long and 91 yd. wide. How many times must the field be crossed in breaking it lengthwise with a reversible disk plow cutting 14 in.?

19. How many furrows are required, if he plows crosswise of the field?

20. If it requires 20 sec. to make the turn at each end, exactly how many minutes will be consumed in making the turns when the field is plowed lengthwise? when plowed crosswise?

21. A boy's field is 296 ft. long and 154 ft. wide. How many stalks of corn (1 stalk to a hill) will he have, if his rows run lengthwise 4 ft. apart, and the stalks are 18 in. apart in the row, allowing a 1-foot border entirely around the field?

22. Allowing an average of $1\frac{1}{3}$ ears per stalk and 120 ears to make 1 bu., what would be his exact yield, if he has a perfect stand?

23. In a day of 12 hr., a man with one horse and a double shovel plow can cultivate 3 A. of corn. In the same time with two horses and a riding cultivator the man can cultivate 7 A. Allowing 10¢ per hour for the man's time and 5¢ per hour for each horse, what is the exact cost of cultivation per acre in each case?

PROBLEMS DEALING WITH ROADS AND SCHOOLS

1. All the property in a certain school district is valued at \$200,000 and there are 120 people who pay poll tax. The people vote a tax of 30¢ on each \$100 valuation, and 90¢ poll tax. How much money will be raised for schools in this district?

2. For exactly how many months will a tax of \$708 pay the salary of a principal receiving \$90 a month, and of an assistant receiving \$45 a month?

3. How much property and poll tax combined will a man pay whose property is valued at \$200? at \$500? at \$1000? at \$2500?

4. A tax of 20¢ on \$100 valuation and 50¢ a poll is voted for good roads. How much will a man pay annually for good roads, if all his property is valued at \$300? at \$1000? at \$1500?

5. On poor roads a two-mule team will draw 1500 lb. ; but on good roads it will draw 2500 lb. Allowing 5 loads a day on a poor road and 6 loads a day on a good road, how many days are lost in hauling 150 bales of cotton (500 lb. to the bale) to market on poor roads?

6. If a man and his team are worth \$3.50 a day, how much money is lost by hauling the 150 bales of cotton mentioned in Ex. 5 over poor roads?

7. For how long would a saving of \$17.50 in hauling pay the road taxes (20¢ per \$100 and 50¢ poll tax) of a man whose real estate is valued at \$3500?

8. What is the taxable value of the property in your township? If the state runs a four months school, how much local tax must be levied to increase your school term to 6 mo.? to 7 mo.? to 8 mo.? to 9 mo.?

PROBLEMS IN GENERAL FARM STATISTICS

1. According to the census of 1910, the farmers of North Carolina cultivated, in 1909, 5,737,037 A. in farm crops. The total value of these crops was \$127,822,068. What was the value per acre?

2. The crops worth \$127,822,068 were raised on 253,725 farms. What was the value of these crops per farm?

3. The total value of all crops in the state in 1909 was \$142,890,192. Of the total value, corn represented 21.9%,

oats 1.2%, wheat 3.1%, hay and forage 3.3%, cotton 35.3%, tobacco 9.7%, all vegetables 14.4%, fruits and nuts 3.1%, forest products 8%. What was the value of each crop?

4. During 1909, the farmers spent \$12,262,533 for fertilizer and \$3,151,190 for feed for animals. What per cent, to the nearest hundredth, of the total value of all crops (\$142,890,192) did they spend for these two items?

5. If cotton was worth 12 cents per pound, how many 500-pound bales, to the nearest bale, would be required to purchase \$12,262,533 worth of fertilizer used that year?

6. In 1912 there were 3,072,000 A. of corn. The average yield was 18 bu. per acre. What was the total yield?

7. The boys in the Corn Club had an average yield of 62.7 bu. per acre. What would have been the total yield in the state, if all the farmers on 3,072,000 A. had had the same yield per acre as the boys?

8. Exactly how many per cent greater was the boys' yield (62.7 bu. per acre) than the men's (18 bu. per acre)?

9. If the average yield of North Carolina were the same as the average yield of the United States, 25.9 bu., how many acres, to the nearest acre, would North Carolina need to cultivate to produce 55,296,000 bu. of corn?

10. In 1909 the farmers bought oats, corn, barley, hay, and forage, to the value of \$3,151,190. They sold the same kind of crops raised on 253,725 farms for \$2,061,783. On the average, how much more did they spend per farm for such crops than they sold them for?

ANSWERS

TO NORTH CAROLINA AGRICULTURAL SUPPLEMENT TO MILNE'S PROGRESSIVE ARITHMETIC—SECOND BOOK

Page 306

1. \$5138
2. \$3575

Page 307

3. \$1828.80
4. \$1746.20
5. \$5.82
1. 60 bu.
2. The latter; \$137.50

Page 308

3. 25 bu.
4. 8.55 bbl.
5. \$67.70
6. 14 bu.
7. \$1035

Page 309

8. 17.39%; \$2.80
9. 320 lb.
1. 1125; 225
2. \$6.95
3. \$22.50
4. 30 lb.
5. 12 oz.

Page 310

6. \$36
1. 3650 lb. hay; $136\frac{7}{8}$ bu. oats
2. 81.47 bu.
3. \$104.94; \$85.38
4. A, 20¢; B, 12¢
5. { A, $3\frac{1}{3}$ qt.; B, 5 qt.
6. { A, $\frac{2}{3}$ qt.; B, 5 qt.
6. \$70.25

Page 311

7. $81\frac{1}{4}$ ¢
8. No. 1, 3.17¢; No. 2, 3.23¢
9. \$2.39
10. \$163.08
11. \$350.40

Page 312

1. 4 lb., 16 lb., 4 lb.
2. 20 lb., 80 lb., 20 lb.
3. 40 lb., 160 lb., 40 lb.
4. 15 lb. nitrogen, 40 lb. phosphoric acid, and 15 lb. potash.
5. 126.58 lb.
6. 189.87 lb.
7. 307.69 lb.; 461.54 lb.
8. 1000 lb.; 250 lb.
9. $83\frac{1}{3}$ lb.; $31\frac{1}{4}$ lb.
10. 320 lb.; 120 lb.
11. 253.16 lb. nitrate of soda, 1000 lb. acid phosphate, 83.33 lb. potassium chloride; total 1336.49 lb.

Page 313

14. 2.99%; 11.97%; 2.99%
15. 246.15 lb.
16. In Tennessee rock, \$.012 $\frac{1}{2}$; in acid phosphate, \$.046 $\frac{7}{8}$

Page 314

17. 2400 lb. in rock; 640 lb. in phosphate
18. Gain \$7.96
1. 64 bu.
2. 4 T.; .48 yr.
3. 2 yr.
4. 55 yd.
5. \$1.00
6. 8 rd.

Page 315

7. 15.5 A.
8. 1.94 A. and 6.59 A.
9. 43,560 sq. ft.; 4356 sq. ft.
10. 99 ft.
11. More; 1044 sq. ft.
12. 1210 cans
13. 11 mi.
14. $6\frac{3}{16}$ mi.
15. 1.82 A.
16. 3.23 A.
17. \$.82 $\frac{1}{2}$; and \$.61 $\frac{7}{8}$

Page 316

18. 234
19. 414
20. 77 $\frac{2}{3}$ min.; 137 $\frac{2}{3}$ min.
21. 7683 stalks
22. $85\frac{11}{30}$ bu.
23. 60¢; 34 $\frac{2}{7}$ ¢
1. \$708.
2. $5\frac{11}{45}$ mo.

Page 317

3. \$1.50; \$2.40; \$3.90; \$8.40.

4. \$ 1.10 ; \$ 2.50 ; \$ 3.50
5. 5 days
6. \$ 17.50
7. 2 yr. 4 mo.
1. \$ 22.28
2. \$ 503.78
3. Corn,
 \$ 31,292,952.05 ;
Oats, \$ 1,714,682.30 ;
Wheat,
 \$ 4,429,595.95 ;

- Hay and forage,
 \$ 4,715,376.34 ;
Cotton, \$ 50,440,237.78,
Tobacco,
 \$ 13,860,348.62
Vegetables,
 \$ 20,576,187.65 ;
Fruit and nuts,
 \$ 4,429,595.95
Forest products,
 \$ 11,431,215.36

Page 318

4. 10.79%
5. 204,376 bales
6. 55,296,000 bu.
7. 192,614,400 bu.
8. $248\frac{1}{3}\%$
9. 2,134,981 A
10. \$ 4.29