Calculations from the Farm
Student Activity Worksheet

How big is an acre? *An old unit of measure is the rod. A rod is 16 1/2 feet long. A square rod is a square plot of ground 16 1/2 feet on a side. An acre is 160 square rods.*

Questions:

1. How many square feet are in one acre?

2. Calculate the area of your classroom. How many classrooms would it take to make an acre?

3. A football field is 160 feet wide and 100 yards from goal line to goal line. How does this area compare to an acre?

4. If the acre field was a square, what would its dimensions be?

5. If an acre field was 1 rod (16 1/2 feet) wide how long would it be?
 What part of a mile?

It is common these days for farmers to have fields of 120 acres.

6. What are some possible dimensions for a 120 acre field?

7. If the 120 acre field was square, what would its dimensions be?

When planting corn, it is common for the rows to be 30 inches apart and the goal is to have a corn stalk about every 4 inches.

8. Suppose you have an acre of field and plant rows that are 30 inches apart. What is the combined length of all the rows in the acre field?

9. If seeds are planted every 4 inches, how many seeds are needed for an acre field? How many seeds are needed to plant a 120 acre field?

10. In the fall, the farmer hopes to be able to harvest about 175 bushels per acre. A bushel of corn weighs about 56 lb. How much would the corn from a 120 acre field weigh?

Calculations from the Farm
Answers

1. 1 acre = 160 square rods = 160 x (16 1/2 * 16 1/2) square feet = 43,560 square feet.

2. Answers will vary.

3. 100 yards = 300 ft, so the area of a football field is 300 x 160 = 48,000 square feet.
That is 1.1 acres, or a little larger than an acre. If you shorten the field by 9 yards to a length
of 91 yards you end up with 43,680 square feet which is very close to an acre.

4. To find we are looking for a number when taken times itself gives us 43,560 or in other words
the square root of 43,560. That field would be approximately 209 feet on a side.

5. 43,560 square feet / 16 1/2 feet = 2640 feet. 2640 feet is 1/2 a mile.

6. Answers will vary.

7. We are looking for a number when taken times itself gives 5,227,200 or in other words, we are
looking
for the square root of 5,227,200. That field would be approximately 2286 feet on a side.

8 The combined length would be in the range of 17,424 to 17,472 feet or 3.3 miles. If you use a square
plot (209 feet by 209 feet) then you have 209 ft x 12 inches/ft = 2508 inches. 2508 inches / 30 inches
per row = 83.6 rows. 83.6 rows x 209 feet (the length of the field) = 17,472.4 feet.
17,424 feet / 5,280 feet/mile = 3.3 miles. There are a number number of places one can round of
on this problem and different shapes of fields, but the answer in miles should generally come out to be
3.3.

9. Answers will vary as students may use the various foot measures they generated in
problem 8. Every 4 inches is 3 seeds per foot. 17,424 feet of row per acre x 3 seeds per
foot is 52,272 seeds per acre. 52,272 seeds per acre x 120 = 6, 272,640 seed for a 120 acre field.

10. 120 acres x 175 bushels per acre x 56 lb. per bushel = 1,176,000 lb. = 588 tons.