MATH 11008: The English System

LENGTH:

1 foot = 12 inches
1 yard = 3 feet
1 rod = 16.5 feet
1 furlong = 660 feet
1 mile = 5280 feet

AREA:

1 ft² = 144 in²
1 yd² = 9 ft²
1 acre = 43,560 ft²
1 square mile = 27,878,400 ft²

VOLUME AND CAPACITY:

1 ft³ = 1728 in³
1 yd³ = 27 ft³
1 Tbsp = 3 tsp
1 oz = 2 Tbsp
1 cup = 8 oz
1 pt = 2 cups
1 qt = 2 pts
1 gal = 4 qts
1 bar = 31.5 gals

WEIGHT:

1 dram = \( \frac{27\ 11}{32} \) grains
1 ounce = 16 drams
1 pound (lb) = 16 ounces
1 ton = 2000 lbs
Example 1: Convert 32 cups to gallons.

Example 2: Convert 30 ft/sec to mi/hr

Example 3: Convert 8 ton/yd$^3$ to lb/ft$^3$
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EXERCISES

1. Calculate the following:
   (a) How many yards in a furlong?
   (b) How many rods in a mile?
   (c) How many acres in a square mile?
   (d) How many cubic feet in a cubic rod?
   (e) How many drams in a ton?
   (f) How many cups in a half-pint?
   (g) How many quarts in a barrel?
   (h) How many teaspoons in a cup?

2. By using dimensional analysis, make the following conversions:
   (a) 51 mi/hr to ft/min
   (b) 12 ft/sec to mi/hr
   (c) 4 quarts (qt) to Tablespoons
   (d) 5 ton/yd³ to lb/ft³
   (e) 2 square miles (mi²) to yd²
   (f) 450 ft per sec to miles per hour
   (g) 132 cups to gallons
   (h) 42 lb/ft³ to ton/yd³
   (i) 5296 yards to miles
   (j) 3 gallons to Tablespoons (Tbsp)
   (k) 25 mi/hr to ft/sec
   (l) 36 lb/ft³ to ton/yd³
   (m) 56 mi/hr to ft/sec
   (n) 780 teaspoons to gallons
   (o) 932 yd/sec to mi/hr
   (p) 23.5 lb/ft³ to ton/yd³
1. (a) 220 yds 
   (b) 320 rods 
   (c) 640 acres 
   (d) 4492.125 ft\(^3\) 
   (e) 512000 drams 
   (f) 1 cup 
   (g) 126 quarts 
   (h) 48 teaspoons 

2. (a) 4488 ft/min 
   (b) 8.18 mi/hr 
   (c) 256 Tbsp 
   (d) 370.37 lb/ft\(^3\) 
   (e) 6195200 yd\(^2\) 
   (f) 306.82 mi/hr 
   (g) 8.25 gals 
   (h) 0.567 ton/cubic yds 
   (i) 3.01 miles 
   (j) 768 Tbsp 
   (k) 36.67 ft/sec 
   (l) .486 ton/yd\(^3\) 
   (m) 82.13 ft/sec 
   (n) 1.02 gallons 
   (o) 1906.36 mi/hr 
   (p) 0.317 ton/yd\(^3\)