Math Primer Questions

Units of Distance

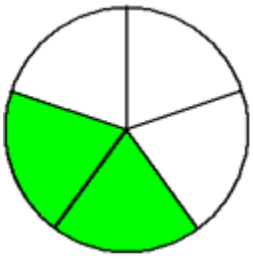
1. How many inches is equal to 5'-6"?
   a. 56
   b. 66
   c. 5.5
   d. 168

2. Expressed as a decimal, how many feet is equal to 1’-6”?
   a. 0.5
   b. 1
   c. 1.5
   d. 1.6

3. Expressed as a decimal, how many feet is equal to 12'-9"?
   a. 12.75
   b. 12.9
   c. 1.75
   d. 1.9

Fractions Are Parts

1. What portion of the circle is shaded?



   a. $\frac{1}{3}$
   b. $\frac{3}{5}$
   c. $\frac{2}{6}$
   d. $\frac{2}{5}$

2. If one-third of 24 prestressing strands in a beam are debonded, then how many strands are debonded?
   a. 3
   b. 8
   c. 12
   d. 16

Fractions and Decimals

3. What is the decimal equivalent of $3\frac{5}{8}$?
   a. 3.325
   b. 3.625
   c. 3.580
   d. 3.750

4. What is the decimal equivalent of $2\frac{1}{4}$?
   a. 2.125
   b. 2.25
   c. 2.375
   d. 2.5

Adding and Subtracting Fractions and Common Denominator

1. $\frac{1}{2} + \frac{1}{2} = ?$
   a. $\frac{1}{4}$
   b. $\frac{2}{4}$
   c. 1
   d. $\frac{4}{2}$

2. $\frac{3}{4} + \frac{1}{8} = ?$
   a. $\frac{5}{12}$
   b. $\frac{11}{16}$
   c. $\frac{5}{8}$
   d. $\frac{7}{8}$

3. $\frac{3}{4} - \frac{1}{8} = ?$
   a. $\frac{5}{12}$
   b. $\frac{11}{16}$
   c. $\frac{5}{8}$
   d. $\frac{7}{8}$

Order of Operations

1. $5 \times (10 - 1) = ?$
   a. 49
   b. 45
   c. 14
   d. 19

2. $48 \div (4 + 4) = ?$
   a. 3
   b. 16
   c. 6
   d. 13

3. $9 + 9 \times 4 = ?$
   a. 49
   b. 45
   c. 72
   d. 54

4. $(6 + 25 - 7) \div 6 = ?$
   a. 6.33
   b. 4
   c. 144
   d. 35

5. $\frac{43-1}{4+2} + 10 = ?$
   a. 22.5
   b. 8.67
   c. 17
   d. 9

Finding a Percent of a Number

1. What is 50% of 132 grams?
   a. 46
   b. 61 grams
   c. 66 grams
   d. 82

2. If a prestressing strand has an ultimate tensile strength of 41 kips and we are only allowed to pull the strand to 80% of its ultimate tensile strength, then what is the most force that can be applied to the strand?
   a. 3.28 kips
   b. 8.2 kips
   c. 32.80 kips
   d. 73.80 kips

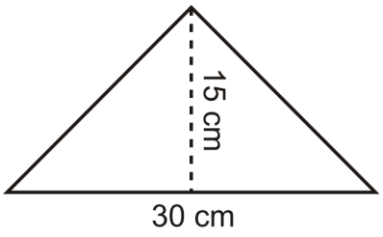
3. During a sieve analysis for a coarse aggregate, 330 g of the total 1,500-g sample was retained on the 3/8" sieve. What is the percent retained for the 3/8" sieve?
   a. 0.22%
   b. 22%
   c. 45%
   d. 78%

4. If a plant's mix design required 750 lbs of cementitious materials, what is the weight of fly ash if the fly is 20% of the total cementitious material?
   a. 150 lbs
   b. 30 lbs
   c. 75 lbs
   d. 3,000 lbs

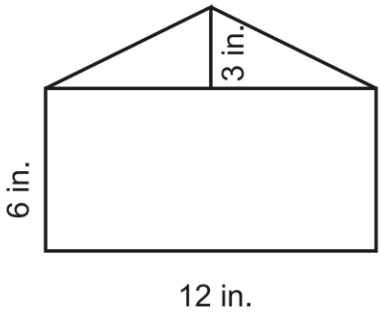
5. PCI allows for a single prestressing strand to be stressed 5% over its target final force. What's the upper tolerance limit for the final force of a strand with a target final force of 31,500 lbs?
   a. 1,575 lbs
   b. 32,275 lbs
   c. 33,075 lbs
   d. 47,250 lbs

Area

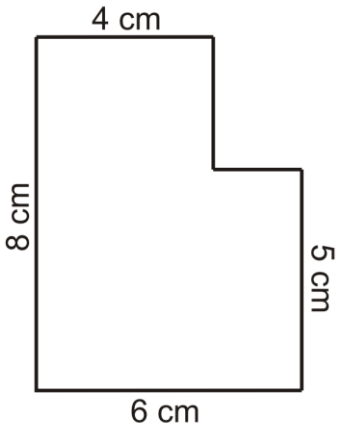
1. Calculate the area of the triangle.
    a. 3,375 cm^2
    b. 6,750 cm^2
    c. 450 cm^2
    d. 225 cm^2



2. What is the area of the figure?
    a. 90 in^2
    b. 108 in^2
    c. 156 in^2
    d. 216 in^2



3. What is the area of the figure?
    a. 21 cm^2
    b. 23 cm^2
    c. 42 cm^2
    d. 48 cm^2

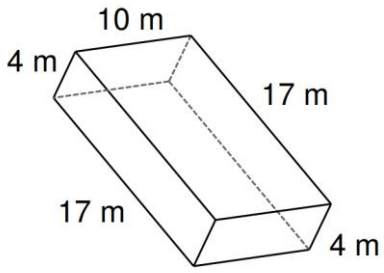


Volume

1. What is the volume of a cube with 5 ft. sides?
    a. 25 $ft.^3$
    b. 100 $ft.^3$
    c. 125 $ft.^3$
    d. Not enough information is provided.

2. How many cubic yards (CY) of concrete is needed to cast a 20'-6" x 11'-0" x 0'-10" wall panel?
    a. 84 CY
    b. 4 CY
    c. 7 CY
    d. 188 CY

3. Calculate the volume of the rectangular prism.
    a. 170 m^3
    b. 680 m^3
    c. 920 m^3
    d. 11,560 m^3



4. Calculate the volume of the above triangular prism.
    a. 3.75 CY
    b. 8.5 CY
    c. 20 CY
    d. 15 CY