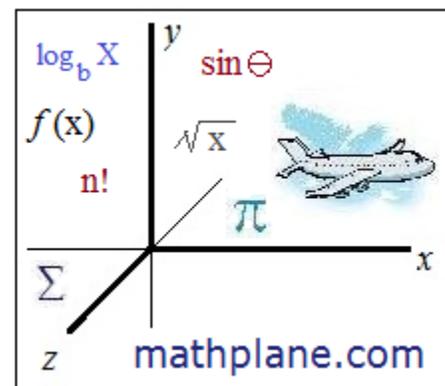


Pre-Algebra Review 1

Quiz and Solutions



I. Primes and Composites

- a) List all prime numbers between 10 and 20
- b) List all composite numbers between 3 and 13
- c) True or False?
 - _____ 2 is a prime number
 - _____ -3 is a prime number
 - _____ 0 and 1 are prime numbers

II. Factors and Multiples

- a) List all factors of 14
- b) List all factors of 24
- c) List all multiples of 5 that are less than 40
- d) List all multiples of 4 between 10 and 25

III. Factors and Multiples (continued)

- a) What is the *greatest common factor* of 10 and 25?
- b) What is the *least common multiple* of 4 and 5?
- c) What is the *GCF* of 5 and 20?
- d) What is the *LCM* of 5 and 20?

Pre-Algebra Review

IV. Fractions (using factors/multiples)

a) Reduce these fractions to simplest terms

$$\frac{8}{16} =$$

$$\frac{10}{25} =$$

$$\frac{2}{17} =$$

$$\frac{48}{56} =$$

b) Find x

$$\frac{3}{7} = \frac{x}{21}$$

$$\frac{x}{11} = \frac{12}{33}$$

$$\frac{x}{14} = 1$$

c) Compare the following pairs; < > or = ?

$$\frac{3}{4} \text{ _____ } \frac{21}{28}$$

$$\frac{8}{20} \text{ _____ } \frac{20}{60}$$

$$\frac{7}{13} \text{ _____ } \frac{32}{52}$$

d) Change to mixed fractions

$$\frac{31}{6} =$$

$$\frac{7}{4} =$$

$$\frac{12}{6} =$$

$$\frac{-13}{3} =$$

e) Change to improper fractions

$$1\frac{6}{7} =$$

$$3\frac{4}{5} =$$

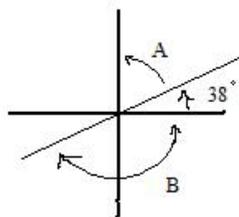
$$2\frac{15}{19} =$$

f) Arrange the following from greatest to least:

$$\frac{7}{3} \quad 3 \quad 2\frac{7}{8} \quad 3\frac{1}{4} \quad \frac{23}{7}$$

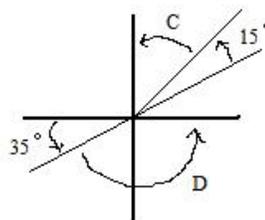
Pre-Algebra Review

V. Find the angle measures.



$$\angle A =$$

$$\angle B =$$



$$\angle C =$$

$$\angle D =$$

VI. Negative numbers

a) $13 - 5 =$

b) $5 - 13 =$

c) $-13 - 5 =$

d) $-13 - (-5) =$

VII. Solve

a) $\frac{1}{2} + \frac{1}{3} =$

b) $\frac{1}{2} - \frac{1}{3} =$

c) $\frac{1}{3} - \frac{1}{2} =$

d) $\frac{1}{2} \cdot \frac{1}{3} =$

Pre-Algebra Review

e) $\frac{3}{4} - \frac{5}{8} =$

f) $\frac{5}{8} - \frac{3}{4} =$

g) $\frac{5}{8} \div \frac{3}{4} =$

h) $\frac{3}{4} \div \frac{5}{8} =$

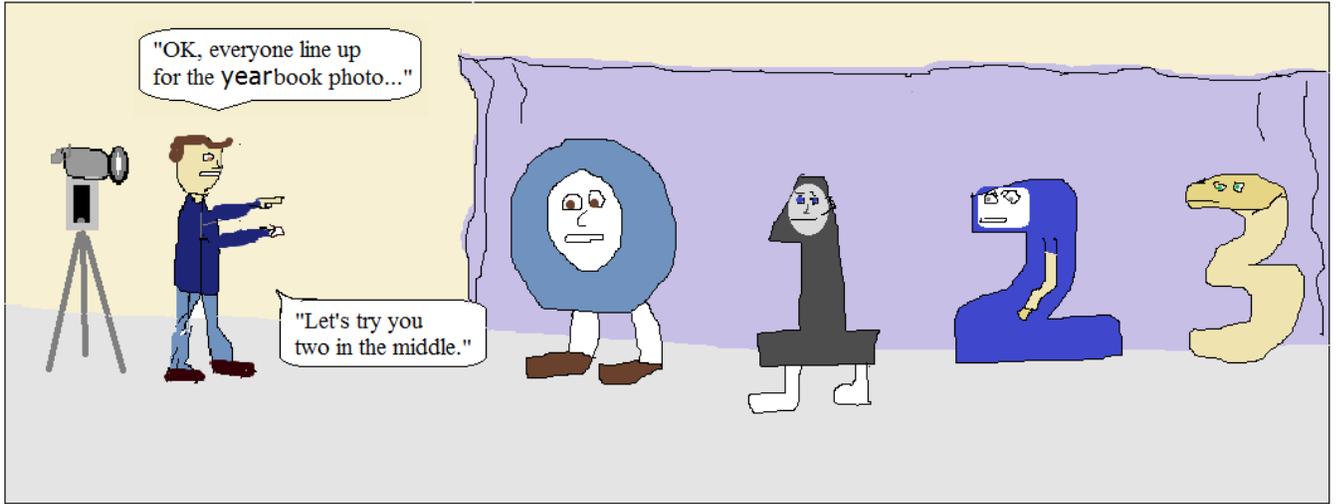
VIII. Averages (Arithmetic Mean)

a) find the average: -10 -6 1 7 12

b) find the mean: $\frac{-1}{2}$ $\frac{-1}{4}$ 0 $\frac{1}{3}$ $\frac{7}{12}$

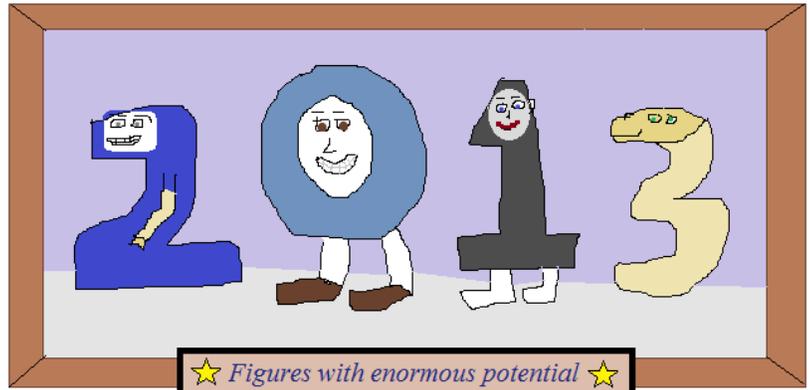
c) A student's average after 4 tests is 76%.

What score is needed on the 5th test to finish the class with an 80% average?



A Year to Remember

(Picture perfect!)



LanceAF #65 (1-1-2013)
www.mathplane.com

SOLUTIONS

I. Primes and Composites

- a) List all prime numbers between 10 and 20

11, 13, 17, 19 ----> primes

- b) List all composite numbers between 3 and 13

4, 6, 8, 9, 10, 12 ----> composites

- c) True or False?

True 2 is a prime number

True, because 2 is divisible by only 1 and itself

False -3 is a prime number

False, because negative numbers are not prime

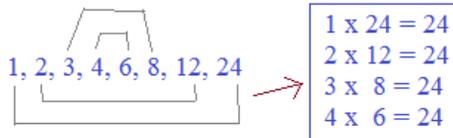
False 0 and 1 are prime numbersFalse, because 0 and 1 are *neither* prime nor composite

II. Factors and Multiples

- a) List all factors of 14

1, 2, 7, and 14 are factors of 14

- b) List all factors of 24



- c) List all multiples of 5 that are less than 40

5, 10, 15, 20, 25, 30, 35 are multiples of $5 < 40$

- d) List all multiples of 4 between 10 and 25

~~4, 8, 12, 16, 20, 24, 28~~ are
 $10 < \text{multiples of } 4 < 25$

III. Factors and Multiples (continued)

- a) What is the
- greatest common factor*
- of 10 and 25?

 Factors of 10: 1, 2, 5, 10
 Factors of 25: 1, 5, 25

Greatest Common Factor: 5

- b) What is the
- least common multiple*
- of 4 and 5?

 Multiples of 4: 4, 8, 12, 16, 20, 24, ...
 Multiples of 5: 5, 10, 15, 20, 25, 30...

Least Common Multiple: 20

- c) What is the
- GCF*
- of 5 and 20?

 Factors of 5: 1, 5
 Factors of 20: 1, 2, 4, 5, 10, 20

Greatest common factor: 5

- d) What is the
- LCM*
- of 5 and 20?

 Multiples of 5: 5, 10, 15, 20, 25, ...
 Multiples of 20: 20, 40, 60, 80...

Least common multiple: 20

(Note: common multiples are 20, 40, 60,... but, the least common multiple is 20)

Pre-Algebra Review

SOLUTIONS

IV. Fractions (using factors/multiples)

a) Reduce these fractions to simplest terms

$$\frac{8}{16} = \frac{1}{2}$$

$$\frac{10}{25} = \frac{2}{5}$$

$$\frac{2}{17} = \frac{2}{17}$$

$$\frac{48}{56} = \frac{24}{28} = \frac{12}{14} = \frac{6}{7}$$

(2 and 17 are prime -- no common factors)

Greatest common factor of 48 & 56 is 8

b) Find x

$$\frac{3}{7} = \frac{x}{21} \quad 9$$

x 3

$$\frac{x}{11} = \frac{12}{33} \quad 4$$

divide by 3

$$\frac{x}{14} = 1 \quad 14$$

c) Compare the following pairs; < > or = ?

$$\frac{3}{4} = \frac{21}{28}$$

$$\frac{24}{60} \frac{8}{20} > \frac{20}{60}$$

$$\frac{28}{52} \frac{7}{13} < \frac{32}{52}$$

d) Change to mixed fractions

$$\frac{31}{6} = 5 \frac{1}{6}$$

$$\frac{7}{4} = 1 \frac{3}{4}$$

$$\frac{12}{6} = 2$$

$$\frac{-13}{3} = -4 \frac{1}{3}$$

e) Change to improper fractions

$$1 \frac{6}{7} = \frac{13}{7}$$

$$3 \frac{4}{5} = \frac{19}{5}$$

$$2 \frac{15}{19} = \frac{53}{19}$$

(7 x 1 + 6 = 13)

(5 x 3 + 4 = 19)

(19 x 2 + 15 = 53)

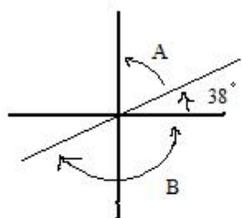
f) Arrange the following from greatest to least:

$$\frac{7}{3} \quad 3 \quad 2 \frac{7}{8} \quad 3 \frac{1}{4} \quad \frac{23}{7}$$

greatest to least: $\frac{23}{7} \quad 3 \frac{1}{4} \quad 3 \quad 2 \frac{7}{8} \quad \frac{7}{3}$

Pre-Algebra Review

V. Find the angle measures.



$$A + 38 = 90$$

$$A = 52$$

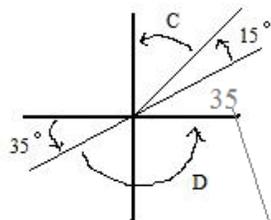
$$B + 38 = 180$$

$$B = 142$$

$$\angle A = 52^\circ$$

$$\angle B = 142^\circ$$

SOLUTIONS



$$D + 35 = 180$$

$$D = 145$$

$$C + 15 + 35 = 90$$

$$C = 40$$

$$\angle C = 40^\circ$$

$$\angle D = 145^\circ$$

(vertical angles
are both 35 degrees)

VI. Negative numbers

a) $13 - 5 = 8$

b) $5 - 13 = -8$

c) $-13 - 5 = -18$

d) $-13 - (-5) = -13 + 5 = -8$

VII. Solve

a) $\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

b) $\frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$

c) $\frac{1}{3} - \frac{1}{2} = \frac{2}{6} - \frac{3}{6} = -\frac{1}{6}$

d) $\frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$

} opposites

$$\begin{aligned} \text{e) } \frac{3}{4} - \frac{5}{8} &= \frac{6}{8} - \frac{5}{8} = \frac{1}{8} \\ \text{f) } \frac{5}{8} - \frac{3}{4} &= \frac{5}{8} - \frac{6}{8} = \frac{-1}{8} \end{aligned} \quad \left. \vphantom{\begin{aligned} \text{e) } \frac{3}{4} - \frac{5}{8} &= \frac{6}{8} - \frac{5}{8} = \frac{1}{8} \\ \text{f) } \frac{5}{8} - \frac{3}{4} &= \frac{5}{8} - \frac{6}{8} = \frac{-1}{8} \end{aligned}} \right\} \text{(opposites)}$$

$$\begin{aligned} \text{g) } \frac{5}{8} \div \frac{3}{4} &= \frac{5}{8} \times \frac{4}{3} = \frac{20}{24} = \frac{5}{6} \\ \text{h) } \frac{3}{4} \div \frac{5}{8} &= \frac{3}{4} \times \frac{8}{5} = \frac{24}{20} = \frac{6}{5} \end{aligned} \quad \left. \vphantom{\begin{aligned} \text{g) } \frac{5}{8} \div \frac{3}{4} &= \frac{5}{8} \times \frac{4}{3} = \frac{20}{24} = \frac{5}{6} \\ \text{h) } \frac{3}{4} \div \frac{5}{8} &= \frac{3}{4} \times \frac{8}{5} = \frac{24}{20} = \frac{6}{5} \end{aligned}} \right\} \begin{array}{l} \text{(invert and multiply)} \\ \text{(reciprocals)} \end{array}$$

VIII. Averages (Arithmetic Mean)

(total of items)

$$\text{a) find the average: } -10 \quad -6 \quad 1 \quad 7 \quad 12 \quad \frac{-10 + (-6) + 1 + 7 + 12}{5} = \frac{4}{5}$$

(5 items being averaged)

$$\text{b) find the mean: } \frac{-1}{2} \quad \frac{-1}{4} \quad 0 \quad \frac{1}{3} \quad \frac{7}{12}$$

$$\frac{-6}{12} + \frac{-3}{12} + 0 + \frac{4}{12} + \frac{7}{12} = \frac{2}{12} = \frac{1}{6}$$

then, divide by the
5 (items) $\frac{1}{30}$

c) A student's average after 4 tests is 76%.

What score is needed on the 5th test to finish the class with an 80% average?

After 4 tests: average is 76 ... therefore, total points so far: $4 \times 76 = 304$ After 5 tests: average of 80... student will need $5 \times 80 = 400$ points...

--> Must get 96 points on the 5th test!

Thanks for visiting the site. (Hope it helped!)

If you have questions, suggestions, or requests, let us know.

Cheers,

Lance@mathplane.com

