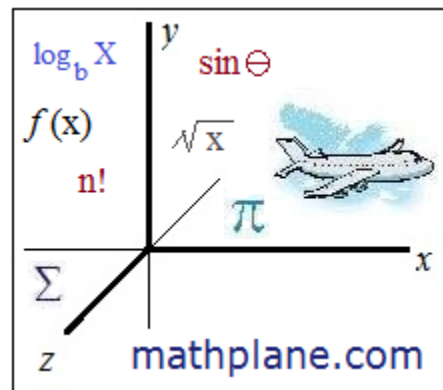


Pre-Algebra Review 2

Test and Solutions

Topics include decimals, fractions, percentages, word problems, inequalities, and more.



Pre-Algebra Review: Decimals, Percentages, Fractions

Part I: Decimals

a) For each pair, indicate $<$ or $>$

$$.72 \underline{\hspace{1cm}} .702$$

$$.6 \underline{\hspace{1cm}} .63$$

$$.123 \underline{\hspace{1cm}} .34$$

$$26.7 \underline{\hspace{1cm}} 8.88$$

$$.2323 \underline{\hspace{1cm}} .323$$

$$.0006 \underline{\hspace{1cm}} .006$$

b) Arrange in descending order (greatest to least)

Group 1

34.2

.345

1.63

0.45

12.5

Group 2

1.01

.001

10.1

.010

.101

Group 3

.06

.006

6.06

6.0006

.6

c) Addition/Subtraction

$$\begin{array}{r} 6.345 \\ + 0.470 \\ \hline \end{array}$$

$$\begin{array}{r} 81.32 \\ + 6.04 \\ \hline \end{array}$$

$$\begin{array}{r} 18.10 \\ + 212.12 \\ \hline \end{array}$$

$$3.006 + 2.4 =$$

$$4.44 + 4.044 =$$

$$.06 + .006 =$$

$$\begin{array}{r} 23.45 \\ - 8.67 \\ \hline \end{array}$$

$$\begin{array}{r} 14.12 \\ - .98 \\ \hline \end{array}$$

$$12.63 - 4.47 =$$

$$22.34 - 1.277 =$$

d) Multiplication/Division

$$\begin{array}{r} 1.6 \\ \times 3.8 \\ \hline \end{array}$$

$$\begin{array}{r} .444 \\ \times 5.5 \\ \hline \end{array}$$

$$\begin{array}{r} 1.6 \\ \times .038 \\ \hline \end{array}$$

$$(22) \times (.8) =$$

$$(8.6) \times (0.9) \times (1.77) =$$

$$3 \overline{) 12.36}$$

$$.02 \overline{) 50}$$

$$.08 \overline{) .776}$$

$$11.06 \div 7 =$$

$$.00868 \div 4 =$$

Part II: Fractions

a) 20% of 300 is ?

74% of 210 is ?

2% of 1234 is ?

b) $\frac{1}{2}$ of 186 is ?

$\frac{4}{5}$ of 160 is ?

$\frac{3}{7}$ of 21.4 is ?

c) $\frac{22}{50} = \underline{\hspace{1cm}} \%$

$\frac{3}{5} = \underline{\hspace{1cm}} \%$

$\frac{4}{9} = \underline{\hspace{1cm}} \%$

$\frac{120}{40} = \underline{\hspace{1cm}} \%$

$\frac{2}{1000} = \underline{\hspace{1cm}} \%$

Part III: Word Problems

- a) The price of a shirt is \$37. If sales tax is an additional 10%, how much does the shirt cost?
- b) A CD is \$15.95. If you got a 20% discount, how much did you pay?
- c) A \$200 VCR was marked down to \$166. What percentage discount was being offered?
- d) If your \$1000 investment lost 20% last year, how much did you lose? What percentage must your investment increase next year to reach \$1000 again?

Mixed Numbers and Decimals: Multiplication/Division

Part I: Mixed Number Multiplication and Division

1) $3\frac{1}{4} \cdot 2\frac{3}{8} =$

2) $-7\frac{2}{9} \cdot 4\frac{1}{3} =$

3) $5 \cdot 3\frac{4}{7} =$

4) $-6\frac{1}{2} \cdot \left(-6\frac{1}{2}\right) =$

5) $4\frac{1}{2} \div 2\frac{5}{7} =$

6) $-8\frac{3}{5} \div 3\frac{2}{5} =$

7) $4 \div 1\frac{5}{9} =$

Part II: Decimals Multiplication and Division

1)
$$\begin{array}{r} .23 \\ \times .6 \\ \hline \end{array}$$

2)
$$\begin{array}{r} .41 \\ \times .05 \\ \hline \end{array}$$

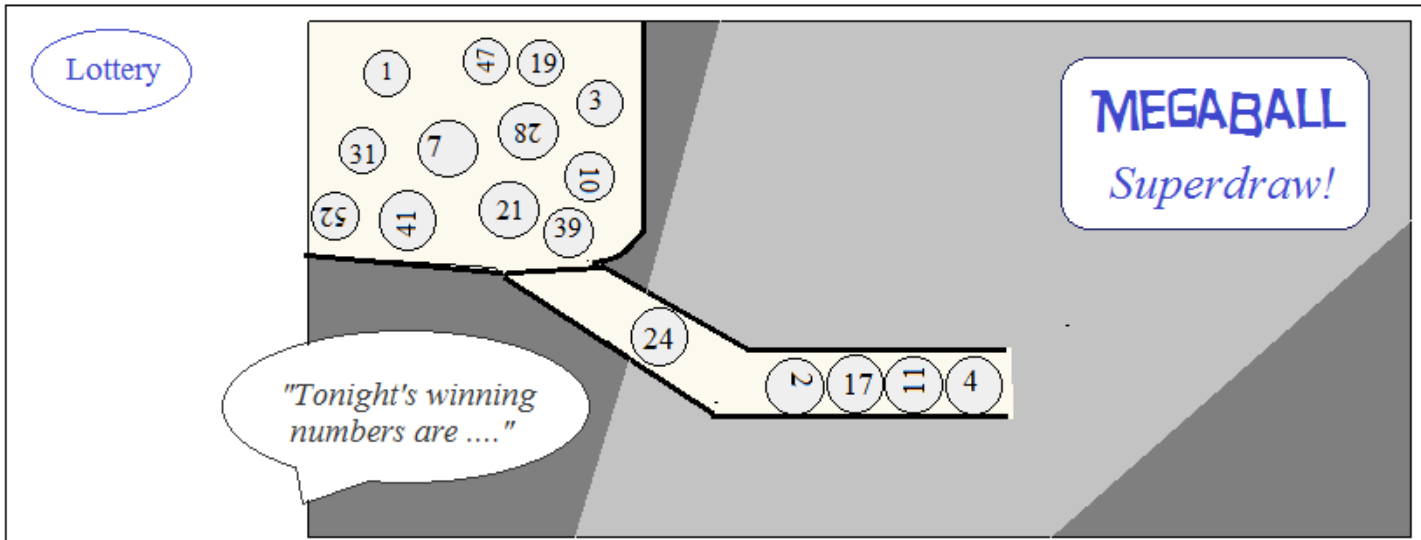
3)
$$\begin{array}{r} .63 \\ \times 1.1 \\ \hline \end{array}$$

4) $2.2 \times 35.11 =$

5) $6.3 \div .3 =$

6) $12.4 \div .02 =$

7) $.5 \overline{) .075}$



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SOLUTIONS-→

Part I: Decimals

a) For each pair, indicate $<$ or $>$

$.72 > .702$

$.6 < .63$

$.123 < .34$

$26.7 > 8.88$

$.2323 < .323$

$.0006 < .006$

b) Arrange in descending order (greatest to least)

Group 1

34.2	34.2
.345	12.5
1.63	1.63
0.45	0.45
12.5	0.345

Group 2

1.01	10.1
.001	1.01
10.1	.101
.010	.010
.101	.001

Group 3

.06	6.06
.006	6.0006
6.06	.6
6.0006	.06
.6	.006

c) Addition/Subtraction

$$\begin{array}{r} 6.345 \\ + 0.470 \\ \hline 6.815 \end{array}$$

$$\begin{array}{r} 81.32 \\ + 6.04 \\ \hline 87.36 \end{array}$$

$$\begin{array}{r} 18.10 \\ + 212.12 \\ \hline 230.22 \end{array}$$

$3.006 + 2.4 = 5.406$

$$4.44 + 4.044 = \begin{array}{r} 4.440 \\ + 4.044 \\ \hline 8.484 \end{array}$$

$$.06 + .006 = \begin{array}{r} .060 \\ + .006 \\ \hline .066 \end{array}$$

$$12.63 - 4.47 = \begin{array}{r} 12.63 \\ - 4.47 \\ \hline 8.16 \end{array}$$

$$22.34 - 1.277 = \begin{array}{r} 22.340 \\ - 1.277 \\ \hline 21.063 \end{array}$$

$$\begin{array}{r} 23.45 \\ - 8.67 \\ \hline 14.78 \end{array}$$

$$\begin{array}{r} 14.12 \\ - .98 \\ \hline 13.14 \end{array}$$

d) Multiplication/Division

SOLUTIONS

$$\begin{array}{r} 1.6 \\ \times 3.8 \\ \hline 128 \\ + 480 \\ \hline 608 \\ \downarrow \text{(move 2} \\ \text{places)} \\ 6.08 \end{array}$$

$$\begin{array}{r} .444 \text{ 3 decimal} \\ \times 5.5 \text{ 1 decimal} \\ \hline 2220 \\ + 22200 \\ \hline 24420 \\ \downarrow \text{(move 4} \\ \text{decimal} \\ \text{places)} \\ 2.4420 \end{array}$$

$$\begin{array}{r} 1.6 \\ \times .038 \\ \hline 128 \\ 480 \\ + 0 \\ \hline 608 \\ \downarrow \\ .0608 \end{array}$$

$$(22) \times (.8) = 17.6$$

$$(8.6) \times (0.9) \times (1.77) = \begin{array}{r} 8.6 \\ \times .9 \\ \hline 7.74 \\ \times 1.77 \\ \hline 13.6998 \end{array}$$

$$\begin{array}{r} 4.12 \\ 3 \overline{) 12.36} \\ \underline{-12} \\ 0.3 \\ \underline{-3} \\ 06 \\ \underline{-6} \\ 0 \end{array}$$

$$\begin{array}{r} .02 \overline{) 50} \\ \hline \end{array}$$

move decimals over
2 places; then,
divide 5000 by 2..

$$5000/2 = 2500 = 50/.02$$

$$\begin{array}{r} 9.7 \\ .08 \overline{) .776} \\ \hline \end{array}$$

to check,
multiply
 $9.7 \times .08$
 $= .776$

$$11.06 \div 7 =$$

$$\begin{array}{r} 1.58 \\ 7 \overline{) 11.06} \\ \underline{-7} \\ 4.0 \\ \underline{-3.5} \\ .56 \\ \underline{-.56} \\ 0 \end{array}$$

$$\begin{array}{r} .00868 \div 4 = \\ \underline{.00217} \\ 4 \overline{) .00868} \\ \underline{.008} \\ 06 \\ \underline{-4} \\ 28 \\ \underline{-28} \\ 0 \end{array}$$

Part II: Fractions

a) 20% of 300 is ? $.20 \times 300 = 60$

74% of 210 is ? $.74 \times 210 = 155.40$

2% of 1234 is ? $.02 \times 1234 = 24.68$

b) $\frac{1}{2}$ of 186 is ? $\frac{1}{2} \times 186 = 93$ or, $1/2 = 50\% \rightarrow .50 \times 186 = 93$

$\frac{4}{5}$ of 160 is ? $\frac{4}{5} \times 160 = 128$ or, $4/5 = 80\% \rightarrow .80 \times 160 = 128$

$\frac{3}{7}$ of 21.4 is ? $\frac{3}{7} \times 21.4 = \frac{64.2}{7} \cong 9.17$

SOLUTIONS

c) $\frac{22}{50} = \frac{44}{100} = 44\%$ $\frac{22}{50} = \frac{44}{100}$

$\frac{3}{5} = \frac{60}{100} = 60\%$ $\frac{3}{5} = \frac{60}{100}$

$\frac{4}{9} = \frac{44.\overline{44}}{100} = 44.\overline{44}\%$

(a vinculum bar means the number repeats indefinitely)

$$\begin{array}{r}
 .4444 \\
 9 \overline{) 4.00000} \\
 \underline{-3.6} \\
 40 \\
 \underline{-36} \\
 40 \\
 \underline{-36} \\
 4...
 \end{array}$$

$\frac{120}{40} = \frac{300}{100} = 300\%$

$\frac{120}{40} = \frac{x}{100}$

$x = 300$

$\frac{2}{1000} = \frac{.2}{100} = .2\%$

$\frac{2}{1000} = \frac{.2}{100}$

Part III: Word Problems

- a) The price of a shirt is \$37. If sales tax is an additional 10%, how much does the shirt cost?

10% of \$37 is \$3.70... therefore, the shirt

cost $\$37.00 + \$3.70 = \$40.70$

- b) A CD is \$15.95. If you got a 20% discount, how much did you pay?

20% of \$15.95 is $.20 \times \$15.95 = \3.19

therefore, you paid $\$15.95 - \$3.19 = \$12.76$

- c) A \$200 VCR was marked down to \$166. What percentage discount was being offered?

$\frac{34}{200} = \frac{17}{100}$

The markdown was $200 - 166 = \$34..$

\$34 is 17% of \$200... the discount is 17%

- d) If your \$1000 investment lost 20% last year, how much did you lose? What percentage must your investment increase next year to reach \$1000 again?

20% of 1000 is 200... You lost \$200...

Now, you have \$800.... For your investment to go back up to \$1000, you need to increase 800 to 1000...

To add 200 to 800, your investment must go up 25%!!!

Mixed Numbers and Decimals: Multiplication/Division

SOLUTIONS

Part I: Mixed Number Multiplication and Division

(** Method: convert to improper fractions. Then, solve.)

1) $3\frac{1}{4} \cdot 2\frac{3}{8} =$

$\frac{13}{4} \cdot \frac{19}{8} =$

$\frac{247}{32}$ or $7\frac{23}{32}$

2) $-7\frac{2}{9} \cdot 4\frac{1}{3} =$

$-\frac{65}{9} \cdot \frac{13}{3} =$

$-\frac{845}{27}$ or $-31\frac{8}{27}$

3) $5 \cdot 3\frac{4}{7} =$

$\frac{5}{1} \cdot \frac{25}{7} =$

$\frac{125}{7}$ or $17\frac{6}{7}$

4) $-6\frac{1}{2} \cdot \left(-6\frac{1}{2}\right) =$

$-\frac{13}{2} \cdot -\frac{13}{2} =$

$\frac{169}{4}$ or $42\frac{1}{4}$

5) $4\frac{1}{2} \div 2\frac{5}{7} =$

$\frac{9}{2} \div \frac{19}{7} =$

$\frac{9}{2} \cdot \frac{7}{19} =$

$\frac{63}{38}$ or $1\frac{25}{38}$

6) $-8\frac{3}{5} \div 3\frac{2}{5} =$

$-\frac{43}{5} \div \frac{17}{5} =$

$-\frac{43}{5} \cdot \frac{5}{17} =$

$-\frac{43}{17}$ or $-2\frac{9}{17}$

7) $4 \div 1\frac{5}{9} =$

$\frac{4}{1} \div \frac{14}{9} =$

$\frac{4}{1} \cdot \frac{9}{14} =$

$\frac{18}{7}$ or $2\frac{4}{7}$

Part II: Decimals Multiplication and Division

1) $\begin{array}{r} .23 \text{ (2 decimal places)} \\ \times .6 \text{ (1 decimal place)} \\ \hline 138 \end{array}$ (3 total decimal places)

.138

2) $\begin{array}{r} .41 \text{ (2 decimal places)} \\ \times .05 \text{ (2 decimal places)} \\ \hline 205 \\ + 000 \\ \hline 205 \end{array}$ (4 total decimal places)

.0205

3) $\begin{array}{r} .63 \text{ (2 places)} \\ \times 1.1 \text{ (1 place)} \\ \hline 63 \\ + 630 \\ \hline 693 \end{array}$ (3 total places)

.693

4) $2.2 \times 35.11 =$

$$\begin{array}{r} 35.11 \text{ (2 places)} \\ \times 2.2 \text{ (1 place)} \\ \hline 7022 \text{ (3 places)} \\ + 70220 \\ \hline 77242 \end{array}$$

77.242

Since $2 \times 35 = 70$, this answer seems reasonable. (the decimal is properly placed)

5) $6.3 \div .3 =$

move each decimal one place to the right:

$63 \div 3 = 21$

quick check:

$21 \times .3 = 6.3$ ✓

6) $12.4 \div .02 =$

move each decimal 2 places to the right:

$1240 \div 2 = 620$

quick check:

$620 \times .02 = 12.40$ ✓

7)

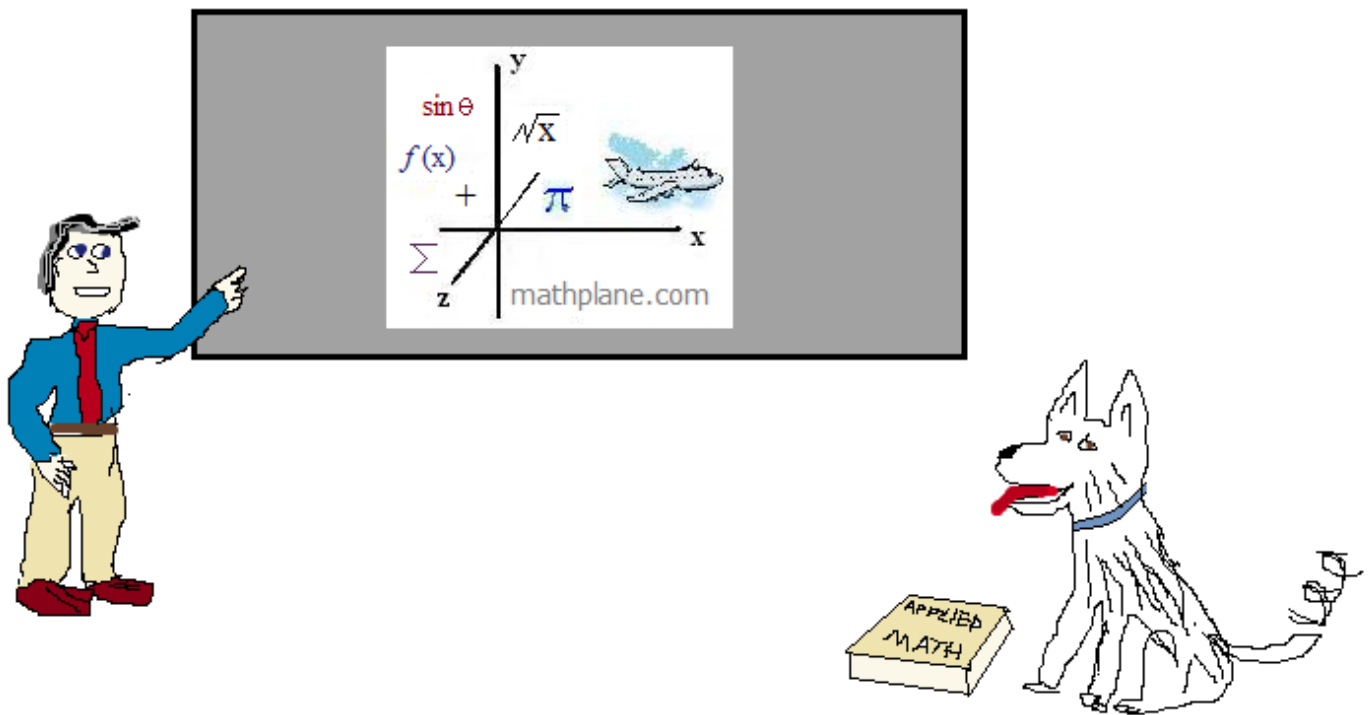
$.5 \overline{) .075}$

$.75 \div 5 = .15$

Thanks for visiting. (Hope it helped!)

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