

Math: Semester 2 Study Guide Solution Key

1) Find if 1300 is divisible by 2, 3, 5, 6, 9, and 10?

Divisible by:

- 2: Y It's an even number.
- 3: N $1+3+0+0=4$, which is not divisible by 3, so 1300 is not, either.
- 5: Y It ends in a 5 or 0.
- 6: N It must be divisible by both 2 AND 3.
- 9: N $1+3+0+0=4$, which is not divisible by 9, so 1300 is not, either.
- 10: Y It ends in 0.

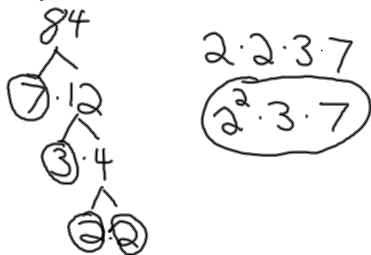
#1

2) Is 27 a composite number? Why or why not?

27 is a composite number because it has other factors other than 1 and 27. It also has factors of 3 and 9.

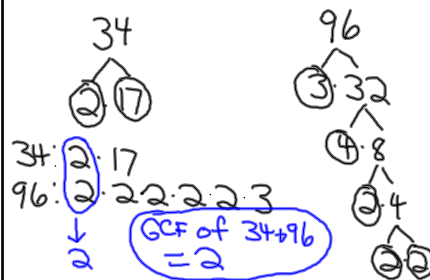
#2

3) What the prime factorization of 84



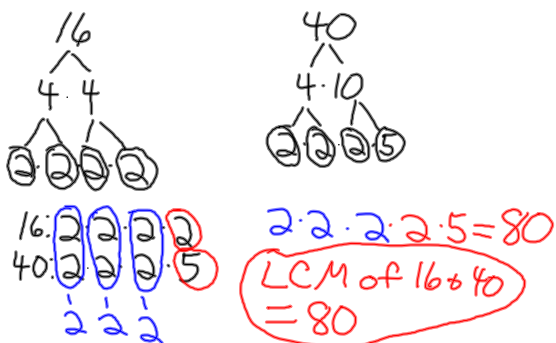
#3

4) What is the GCF of 34 & 96?



#4

5) What is the LCM of 16 and 40?



#5

6) Write two fractions equivalent to $\frac{5}{6}$

$$\frac{5}{6} \cdot 2 = \frac{10}{12}$$

$$\frac{5}{6} \cdot 3 = \frac{15}{18}$$

These are just two examples. There are infinite possibilities.

#6

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7) Put these numbers in order from least to greatest: $\frac{7}{5}, \frac{3}{6}, \frac{15}{8}, \frac{32}{16}$

Get all in same form:
 $\frac{13}{6} = \frac{9}{6} = \frac{3}{2}$ $\frac{32}{16} = 2$

Common denominator:
 $\frac{7}{56}$ $\frac{3}{40}$ $\frac{15}{80}$ $\frac{32}{160} = 2$
 $\frac{156}{40}$ $\frac{160}{40}$ $\frac{175}{40}$ $\frac{80}{40}$

Already in correct order

#7

8) Write a mixed number equal to $\frac{34}{7}$

$\frac{34}{7} \leftarrow$ divide

$\begin{array}{r} 4 \\ 7 \overline{)34} \\ \underline{28} \\ 6 \end{array}$ $4\frac{6}{7}$

#8

9) Which improper fraction is equal to $5\frac{4}{9}$

$5\frac{4}{9}$ $9 \cdot 5 = 45$ $45 + 4 = 49 \rightarrow \frac{49}{9}$

#9

10) Which mixed number is equal to 4.85? (Put the fraction in simplest form.)

$4.85 = 4\frac{85}{100} \div 5 = 4\frac{17}{20}$

"eighty-five hundredths"

#10

11) Which number is the decimal equivalent of $7\frac{3}{8}$

$7\frac{3}{8}$ $\frac{3}{8} \rightarrow 3 \div 8 \rightarrow 8 \overline{)3.000}$

$\begin{array}{r} 375 \\ 8 \overline{)3.000} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$

7.375

#11

12) Find the sum $\frac{9}{10} + \frac{3}{4}$. Show your work.

$\frac{9}{10} + \frac{3}{4}$

$\frac{18}{20} + \frac{15}{20} = \frac{33}{20} = 1\frac{13}{20}$

#12

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13) Find the difference $\frac{3}{5} - \frac{9}{20}$. Show your work.

$$\frac{3}{5} - \frac{9}{20}$$

$$\frac{12}{20} - \frac{9}{20} = \frac{3}{20}$$

#13

14) You planted $16\frac{2}{5}$ acres of corn yesterday and $18\frac{1}{10}$ acres today.

How many more acres did you plant today?

$$18\frac{1}{10} \rightarrow 18\frac{2}{20}$$

$$-16\frac{2}{5} \rightarrow 16\frac{8}{20}$$

$$1\frac{14}{20} = \frac{7}{10}$$

#14

15) $5\frac{5}{16} + 3\frac{3}{16} = 8\frac{8}{16} = 8\frac{1}{2}$

$$5+3=8$$

$$\frac{5}{16} + \frac{3}{16} = \frac{8}{16}$$

#15

$$6\frac{1}{3} - x \quad x = 3\frac{1}{4}$$

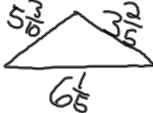
$$6\frac{1}{3} - 3\frac{1}{4} = 6\frac{4}{12} - 3\frac{3}{12} = 3\frac{1}{12}$$

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$P = s + s + s$

$P = 5\frac{3}{10} + 3\frac{2}{5} + 6\frac{1}{5} = 9\frac{3}{10}$

$P = 5\frac{3}{10} + 9\frac{3}{10} = 14\frac{6}{10} = 14\frac{3}{5}$



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18) \$18/hr works $\frac{1}{4}$ of an hour

one way to solve: $\frac{1}{4}$ of \$18 $\rightarrow \frac{1}{4} * 18 = \frac{18}{4} = \frac{9}{2} = 4\frac{1}{2} = \4.50

another way: $0.25 * 18 = 4.50$

$$\begin{array}{r} 18 - 0 \\ * .25 - 2 \\ \hline 90 \\ + 360 \\ \hline 4.50 \end{array}$$

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19) $\frac{9}{10} \times \frac{3}{4} = \frac{27}{40}$

#19

20) $\frac{3}{7} \times x = \frac{10}{12}$
 $\frac{3}{7} \cdot \frac{10}{\cancel{12}^4} = \frac{10 \div 2}{28 \div 2} = \frac{5}{14}$

#20

21) $9\frac{1}{4} \cdot 3\frac{1}{4}$
 $\frac{37}{4} \cdot \frac{13}{4} = \frac{481}{16} = 30\frac{1}{16}$

$$\begin{array}{r} 37 \\ \times 13 \\ \hline 111 \\ + 370 \\ \hline 481 \end{array}$$

$$\begin{array}{r} 30\frac{1}{16} \\ 16 \overline{) 481} \\ \underline{480} \\ 01 \\ \underline{0} \\ 1 \end{array}$$

#21

22) reciprocal of $2\frac{4}{9}$
 must change to improper fraction
 $2\frac{4}{9} = \frac{22}{9}$ reciprocal $\rightarrow \frac{9}{22}$

#22

23) $8 \div \frac{3}{4} \rightarrow \frac{8}{1} \cdot \frac{4}{3} = \frac{32}{3} = 10\frac{2}{3}$ servings

#23

24) $\frac{5}{12} \div \frac{3}{24}$
 $\frac{5}{\cancel{12}^2} \cdot \frac{24}{3} = \frac{10}{3} = 3\frac{1}{3}$

#24

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$$25) \quad 2\frac{1}{3} \div 1\frac{4}{5} = \frac{7}{3} \div \frac{9}{5}$$
$$\frac{7}{3} \cdot \frac{5}{9} = \frac{35}{27} = \left(\frac{8}{27}\right)$$

#25

$$26) \quad \frac{\text{Snickers}}{\text{M\&W}} = \frac{18}{34} = \left(\frac{9}{17}\right)$$

#26

$$27) \quad \frac{\$}{16} = \frac{32.79}{6.25} = \frac{x}{1}$$
$$32.79 \cdot 1 = 6.25x$$
$$x = \frac{32.79}{6.25} = \left(\$5.25/16\right)$$

#27

$$28) \quad \begin{array}{l} \text{Shirt } 14 \\ \text{pants } 38 \\ \text{Total: } \$52 \end{array} \quad \begin{array}{l} 6\% \text{ of } \$52.00 \\ 0.06 \cdot 52 = \$3.12 \\ 52.00 + 3.12 = \left(\$55.12\right) \end{array}$$

#28

$$29) \quad 35\% \text{ of } 19,000$$
$$0.35 * 19,000 = \left(\$6,650\right)$$

#29

$$30) \quad 40\% \text{ of } 80$$
$$0.4 \times 80 = 32$$
$$80 - 32 = \left(48\right)$$

#30

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31) decrease $\rightarrow (-)$

$$\textcircled{-98}$$

#31

32) $8, 5, 4, 4, 12$

$$-5 + (-4) = -9$$

$$8 + 4 + 12 = 24$$

$$-9 + 24 = 15$$

$$15 \div 5 = \textcircled{3}$$

#32

33) The opposite of -10 is 10.

#33

34) Joe had \$345 in his savings account. He deposited \$45, withdrew \$92, and deposited another \$105. Represent each transaction as an integer, and find the current balance in his account.

	deposit	withdraw
\$345	45	-92
	+105	
	<hr/>	
	150	

$$345 + 150 + (-92) = \textcircled{\$403}$$

#34

35)

The word "of" in mathematical terms actually represents multiplication. Those two numbers should in fact be multiplied when you take "half of the recipe."

$$\frac{3}{4} \cdot \frac{1}{2}$$
$$\frac{7}{4} \cdot \frac{1}{2} = \textcircled{\frac{7}{8} \text{ cup}}$$

#35

36) You can actually use only the $\frac{1}{4}$ cups to get $2 \frac{1}{2}$ cups. All you would need to do is measure with the $\frac{1}{4}$ cup 10 times. $10 \cdot \frac{1}{4} = 2 \frac{1}{2}$

#36

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$$37) \quad \frac{332 \text{ miles}}{16 \text{ gallons}} = \frac{x \text{ mi}}{1 \text{ gal}}$$
$$332 \cdot 1 = 16x$$
$$x = \frac{332}{16} = \frac{20.75 \text{ miles}}{1 \text{ gal}}$$

This is a unit rate because it is calculated for every ONE (1) gallon.
When a rate is calculated to ONE of some unit, it is defined as a unit rate.

#37