$36 = 2 \cdot 2 \cdot 3 \cdot 3$

$24 = 2 \cdot 2 \cdot 2 \cdot 3$

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DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE

NAME: Solutions — Test 3 Sample — 10/10/14
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Each questions is 5 points. SHOW ALL WORK to receive full credit. Simplify all answers: reduce all fractions and convert improper fractions to mixed numbers. Decimals should be exact so indicate any repeating digits. Include any units.

The ~~actual~~ test will be on Thursday 10/16/14

1. $268.196 + 328.52 =$ 596.716

$$\begin{array}{r} 268.196 \\ +\ 328.520 \\ \hline 596.716 \end{array}$$

LINE UP DECIMAL PTS

2. $2300 - 1289.79 =$ 1010.21

$$\begin{array}{r} 2300.00 \\ -\ 1289.79 \\ \hline 1010.21 \end{array}$$

LINE UP DECIMAL PTS.

3. $32.15 \times 4.04 =$ 129.886

$$\begin{array}{r} 32.15 \\ \times\ 4.04 \\ \hline 12860 \\ 1286000 \\ \hline 129.8860 \end{array}$$

need 4 decimal places

4. $1.698 \div 0.8 =$ 2.1225

$0.8\overline{)1.698}$ ⇒ more both pts right once

$$8\overline{)16.9800} = 2.1225$$

-16, $9 - 8 = 1$, bring down 8 → $18 - 16 = 2$, bring down 0 → $20 - 16 = 4$, bring down 0 → $40 - 40 = 0$

5. $15 \div 9 =$ $1.\overline{6}$ or $1\frac{2}{3}$

$$9\overline{)15.00} = 1.66\ldots$$

-9, 60, -54, 60, -54, 6

or $9\overline{)15} \to 1\frac{6}{9}$ (-9, 6)

6. Solve for x: $\frac{18}{x} = \frac{6}{11}$ {33}

$\times 3$ on both sides

So $x = 33$

or use proportions:

$6x = 18 \cdot 11$

$\frac{6x}{6} = \frac{18 \cdot 11}{6} = \frac{198}{6}$

$x = 33$

$$6\overline{)198} = 33$$

-18, 18, -18, 0

$18 \times 11 = 18 + 180 = 198$

7. Solve for x: $\frac{\frac{4}{5}}{3} = \frac{x}{2\frac{1}{7}}$ {4/7}

$3x = \frac{4}{5} \cdot 2\frac{1}{7}$

$3x = \frac{4}{5} \cdot \frac{15}{7}^{3}$

$3x = \frac{12}{7}$

$\frac{3x}{3} = \frac{\frac{12}{7}}{3}$

$x = \frac{12}{7} \div 3 = \frac{12}{7} \cdot \frac{1}{3} = \frac{4}{7}$

8. (a) GCF(36, 24) = $2 \cdot 2 \cdot 3 = 12$

(b) LCM(36, 24) = 72

$2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$

24 · 3

9. Solve for x: $5x + 12 = 9$

$-12 \quad -12$

$5x = 21$

$\frac{5x}{5} = \frac{21}{5}$

$x = \frac{21}{5} = 4\frac{1}{5}$ or 4.2

$\{4\frac{1}{5}\}$ (or {4.2})

10. Solve for x: $-\frac{2}{3}x = 18$ $\left(-\frac{3}{2}\right)$ multiply by reciprocal of coefficient $\left(-\frac{3}{2}\right)$

$x = \frac{-54}{2} = -27$

{−27}

11. Change $4\frac{3}{10}\%$ to a decimal or reduced fraction.

Decimal: divide by 100

$4\frac{3}{10}\% = 4.3\% = .043$

Fraction

$4\frac{3}{10}\% = \frac{4\frac{3}{10}}{100} = \frac{\frac{43}{10}}{100} =$

$\frac{43}{10} \div 100 = \frac{43}{10} \cdot \frac{1}{100} =$

$\frac{43}{1000}$

12. Give 0.006 as a percent.

times 100, attach %

0.6%

$\frac{P}{100} = \frac{A}{B}$

13. If 75% of a number is 120, what is the number? Round to one decimal point if needed.

$\frac{75}{100} = \frac{120}{x}$ → 160

$\frac{3}{4} = \frac{120}{x}$ $x = 160$ (×40)

or $3x = 4 \cdot 120$, $3x = 480$, $\frac{3x}{3} = \frac{480}{3} = 160$

14. Put the fractions in increasing order:

$\frac{4}{9}, \frac{2}{3}, \frac{7}{12}$

can change to decimals or to like fractions.

Fractions: LCD(3, 9, 12) = 36

$\frac{4}{9} = \frac{16}{36}$ ← smallest

$\frac{2}{3} = \frac{24}{36}$ ← largest

$\frac{7}{12} = \frac{21}{36}$

$\frac{4}{9}, \frac{7}{12}, \frac{2}{3}$

15. If the temperature is 50° Fahrenheit, what is it in degrees Celsius? Use $C = \frac{5}{9}(F - 32)$.

$C = \frac{5}{9}(50 - 32)$

$C = \frac{5}{9}(18) = \frac{5}{9} \cdot \frac{18}{1} = 10$

10°C

16. Evaluate $3x^2 - 5x + 9$ when $x = -2$.

$3(-2)^2 - 5(-2) + 9$

$3(-2)(-2) - 5(-2) + 9$

$12 + 10 + 9$

31

16 × 16: 96, 160, 256

17. If 32 out of 40 students passed a class, find the exact percentage of students who failed.

So $40 - 32 = 8$ failed

$8 \div \frac{8}{40} = \frac{P}{100}$

$\frac{1}{5} = \frac{P}{100}$

$1 \cdot 100 = 5P$

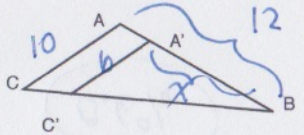
$\frac{100}{5} = P$

$20 = P$

20% failed

18. Given $\overline{AC}$ is parallel to $\overline{A'C'}$, and that sides $\overline{AC} = 10$cm, $\overline{A'C'} = 6$cm, and $\overline{AB} = 12$cm, find the length of $\overline{A'B}$.

So $\triangle ABC \sim \triangle A'BC'$



$\frac{x}{12} = \frac{6}{10}$ ← small △ ← large △

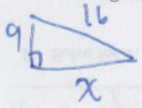
$10x = 12 \cdot 6$

$10x = 72$

$x = \frac{72}{10} = 7.2$cm

or 7 1/5 cm

19. A right triangle with hypotenuse of 16cm has one 9cm leg. How long is the other leg?



$x^2 + 9^2 = 16^2$

$x^2 + 81 = 256$

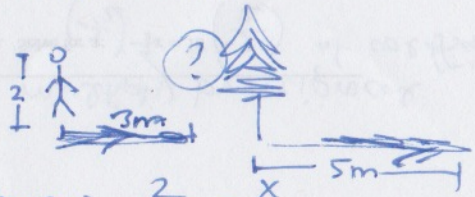
$-81 \quad -81$

$x^2 = 175$

$\sqrt{x^2} = \sqrt{175}$

$x = \sqrt{175}$

20. If a 2m tall man casts a 3m shadow, how tall is a tree that casts a 5m shadow?



man → $\frac{2}{3} = \frac{x}{5}$

shadow →

$2 \cdot 5 = 3 \cdot x$

$10 = 3x$

$\frac{10}{3} = x$

$3\frac{1}{3}\text{m} = x$

or $3.\overline{3}\text{m} = x$

$3\frac{1}{3}$ m or $3.\overline{3}$m

End of Test 1