

1.)  $(3a^2b^5)^4$

$$\boxed{3^4 a^8 b^{20}}$$

$$\boxed{81 a^8 b^{20}}$$

2.)  $\left( \frac{4x^5y^7}{3z^4} \right)^3$

$$\left( \frac{4x^5y^7}{3z^4} \right) \left( \frac{4x^5y^7}{3z^4} \right) \left( \frac{4x^5y^7}{3z^4} \right)$$

$$\boxed{\frac{4^3 x^{15} y^{21}}{3^3 z^{12}}}$$

Pre-Algebra Chapter 5 Pre-Test

No decimals!

1.) (5 pts each, 10 pts total) (2-1) Find the lowest common denominator (LCD) of each pair of fractions. Write equivalent fractions using the LCD and compare. Use  $>$ ,  $<$ , or  $=$  to compare each statement.

a)  $\frac{23}{36}$  and  $\frac{4}{6}$

$\frac{23}{36} < \frac{24}{36}$

b)  $\frac{5}{8}$  and  $\frac{8}{12}$

#1  $\frac{23}{36} = \frac{23}{36}$   
 $\frac{4}{6} = \frac{24}{36}$

#2  $\frac{23 \times 6}{36} = \frac{138}{36}$   
 $\frac{36 \times 4}{36} = \frac{144}{36}$

Business Decision

2.) (5 pts) (2-2) Write the decimal as a fraction.

$\frac{63}{99} = 0.\overline{636363} \dots$

0.63333...

$n = 0.63333 \dots$

1.) Get version where decimal is after the first repeat.

2.) Get version where decimal is before the first repeat.

3.) Subtract  
 4.) Solve for n

$100n = 63.\overline{333} \dots$

$- 10n = 6.\overline{333} \dots$

$\frac{90n = 57}{90}$

$n = \frac{57 \div 3}{90 \div 3} = \frac{19}{30}$

3.) (5 pts each, 10 points total) Convert as required.

a) Write 0.65 as a fraction.

$\frac{65}{100} \xrightarrow{\div 5} \frac{13}{20}$  then reduce

Punch math in its stupid, stupid face!!  $\frac{3}{8}$

Do NOT just give me a decimal!

Calculator:  $60 \div 8$  only for steps.

$8 \overline{) 3.000}$   
 $- 24 \downarrow$   
 $60$   
 $- 56 \downarrow$   
 $40$   
 $- 40$   
 $0$

$0.375$

$.375$

4.) (5 pts each, 10 pts total) (5-3) Find each difference. Reduce if needed.

a)  $\frac{2}{3} - \frac{9}{15}$

$$8\frac{1}{3}$$

$$3\frac{5}{6}$$

$$\frac{1}{3} = \frac{2}{6}$$

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

b)  $8\frac{1}{3} - 3\frac{5}{6}$

$$7\cancel{8}\frac{2}{6} + \frac{6}{6}$$

$$- 3\frac{5}{6}$$


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$$7\frac{8}{6}$$

$$- 3\frac{5}{6}$$


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$$4\frac{3}{6} = \boxed{4\frac{1}{2}}$$

or  $\boxed{\frac{9}{2}}$

5.) (5 pts each, 10 pts total) (5-3) Find each sum. Write as either an improper fraction or mixed number. Reduce if needed.

a)  $\frac{5}{6} + \frac{4}{9}$

b)  $7\frac{5}{12} + 2\frac{7}{16}$

$$7\frac{5}{12}$$

$$+ 2\frac{7}{16}$$


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$$\frac{5}{12} = \frac{20}{48}$$

$$\frac{7}{16} = \frac{21}{48}$$

$$7\frac{20}{48}$$

$$+ 2\frac{21}{48}$$


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$$\boxed{9\frac{41}{48}}$$

6.) (5 pts each, 10 pts total) (5-4) Find the product.

a)  $4\frac{1}{3} \times \frac{9}{2}$   
 1<sup>st</sup> convert  $4\frac{1}{3}$   
 into an improper  
 fraction

$$4\frac{1}{3} = \frac{(4 \times 3) + 1}{3} = \frac{13}{3}$$

$$4\frac{1}{3} \times \frac{9}{2}$$

$$\downarrow$$

$$\frac{13}{3} \times \frac{9}{2} \div 3$$

$$\frac{13}{1} \times \frac{3}{2} = \boxed{\frac{39}{2}}$$

b)  $\frac{4}{7} \times \frac{14}{16}$

7.) (5 pts each, 10 pts total) (5-4) Find the quotient.

a)  $5\frac{1}{4} \div \frac{7}{8}$

$$5\frac{1}{4} = \frac{(5 \times 4) + 1}{4} = \frac{21}{4}$$

$$\downarrow$$

$$\frac{21}{4} \div \left(\frac{7}{8}\right)$$

Keep, Change, Flip!

$$\downarrow$$

$$\frac{21}{4} \times \frac{8}{7} \div 7$$

$$\frac{3}{4} \times \frac{8}{1} \div 4$$

$$\frac{3}{1} \times \frac{2}{1} = \frac{6}{1} = \boxed{6}$$

b)  $\frac{11}{12} \div \frac{2}{3}$

8.) (5 pts each, 15 points total) (5-7) Solve each equation.

a)  $x + \frac{3}{4} = \frac{7}{12}$

$-\frac{3}{4} \quad -\frac{3}{4} \quad \left. \vphantom{-\frac{3}{4}} \right\} 2.2.5$   
 $x = \frac{7}{12} - \frac{3}{4}$

1.) Algebra sol. 2.) Computation  
 opposite

$\frac{7}{12} = \frac{7}{12}$   
 $\frac{3}{4} = \frac{9}{12}$

b)  $y - \frac{1}{7} = \frac{3}{5}$

$x = \frac{7}{12} - \frac{9}{12} = \frac{-2}{12 \div 2} = \boxed{\frac{-1}{6}}$

c)  $z - 5\frac{1}{2} = 6\frac{7}{10}$

9.) (5 pts each, 10 points total) (5-8) Solve each equation.

a)  $\frac{-8}{3}x = 2\frac{4}{6}$

$2\frac{4}{6} = \frac{(2 \times 6) + 4}{6} = \frac{12 + 4}{6} = \frac{16}{6}$

$\left(\frac{3}{-8}\right) \left(\frac{-8}{3}x\right) = \left(\frac{3}{-8}\right) \left(\frac{16}{6}\right)$   
 $x = \frac{1}{-1} = -1$   
 $\boxed{x = -1}$

Multiply by the inverse! Flip!!

b)  $7\frac{9}{13}x = \frac{1}{8}$

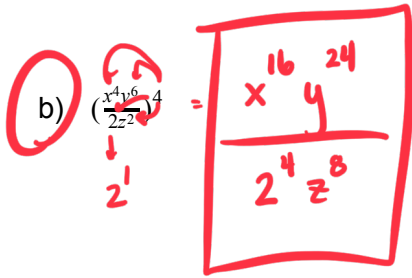
$7\frac{9}{13} = \frac{(7 \times 13) + 9}{13} = \frac{91 + 9}{13} = \frac{100}{13}$

$\left(\frac{13}{100}\right) \left(\frac{100}{13}x\right) = \left(\frac{13}{100}\right) \left(\frac{1}{8}\right)$   
 $x = \frac{13}{800}$   
 $\boxed{\frac{13}{800}}$

10.) (5 pts each, 10 points total) (5-9) Simplify each expression.

a)  $(\frac{a^3 b^5}{c^2})^3$

b)  $(\frac{x^4 y^6}{2z^2})^4$



$x^{16}$	$y^{24}$
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$2^4$	$z^8$