

8.2.3

Hwk

8-88)

a)  $92.5 \times 10^{-2}$  should be written  $9.25 \times 10^{-1}$

b)  $6.875 \times 10^2$  correct

c)  $2.8 \times 10$  correct

d)  $0.83 \times 100^2$  should be  $8.3 \times 10^3$   
( $0.83 \times 10,000$ )  $100^2 = 10^3$  (8,300)  
8,300

8-89)

a)

Power of 10	Decimal Form	Fraction Form
$10^0$	1	
$10^{-1}$	0.1	$\frac{1}{10}$
$10^{-2}$	0.01	$\frac{1}{100}$
$10^{-3}$	0.001	$\frac{1}{1000}$
$10^{-4}$	0.0001	$\frac{1}{10,000}$
$10^{-5}$	0.00001	$\frac{1}{100,000}$

b)  $10^{-12}$  write 11 zeros after the decimal point followed by a 1.

8-90) skip (compound interest)

8-91)

a)  $|6| = 6$     b)  $|-17| = 17$     c)  $-|-4.5| = -4.5$

d)  $|2-5| = |-3| = 3$

e)  $|2-3.5| = |2-15| = |-13| = 13$

f)  $-2 \cdot |-2| = (-2) \cdot (2) = -4$

8-92)

a) 
$$\begin{array}{r} x - \frac{3}{5} = 1\frac{2}{5} \\ + \frac{3}{5} \quad + \frac{3}{5} \\ \hline x = 2 \end{array}$$

b) 
$$\begin{array}{r} 5.2 + x = 10.95 \\ -5.2 \quad -5.2 \\ \hline x = 5.75 \end{array}$$

c) 
$$\begin{array}{r} 2x - 3.25 = 7.15 \\ + 3.25 \quad + 3.25 \\ \hline 2x = 10.40 \\ \underline{\quad 2 \quad \quad 2} \\ x = 5.20 \end{array}$$

d) 
$$\begin{array}{r} \frac{x}{16} = \frac{3}{8} \\ \times 16 \quad \times 16 \\ \hline x = 6 \end{array}$$

8-93)

a)  $y = 2x - 3$     and     $y = 4x + 1$

$$2x - 3 = 4x + 1$$

$$\begin{array}{r} -2x \quad -2x \\ \hline -3 = 2x + 1 \\ -1 \quad -1 \\ \hline -4 = 2x \end{array}$$

$$\begin{array}{r} -4 = 2x \\ \underline{\quad 2 \quad \quad 2} \\ (-2) = x \end{array}$$

$$\begin{array}{l} y = 4x + 1 \\ y = 4(-2) + 1 \\ y = -8 + 1 \end{array}$$

$$y = -7$$

$$(-2, -7)$$

b)  $y = 2x - 5$  and  $y = -4x - 2$

$$\begin{array}{r} 2x - 5 = -4x - 2 \\ -2x \qquad -2x \\ \hline -5 = -6x - 2 \\ +2 \qquad +2 \\ \hline -3 = -6x \\ -6 \qquad -6 \\ \hline \frac{1}{2} = x \end{array}$$

$$\begin{aligned} y &= (-4)\left(\frac{1}{2}\right) - 2 \\ y &= -2 - 2 \\ y &= -4 \end{aligned}$$

$$\left(\frac{1}{2}, -4\right)$$

8-94)

a)  $5467.8$   
 $5.4678 \times 10^3$

b)  $0.0032$   
 $3.2 \times 10^{-3}$

c)  $8,007,020$   
 $8.00702 \times 10^6$

8-95)

a)  $\frac{3^5}{3^{10}} = \frac{1}{3^5} = 3^{-5}$

b)  $10x^4(10x)^{-2} = \frac{10x^4}{(10x)^2} = \frac{10 \cdot x \cdot x \cdot x \cdot x \cdot x^2}{10x \cdot 10x} = 10^{-1} \cdot x^2$

c)  $\left(\frac{1}{4}\right)^3 \cdot (4)^2 = \frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4} \cdot 4 \cdot 4 = \frac{1}{4}$

d)  $\frac{(xy)^3}{xy^3} = \frac{(xy)(xy)(xy)}{x \cdot y \cdot y \cdot y} = x^2$

$$8-96) \quad a) \quad -\frac{3}{9} \cdot \frac{8}{15} = -\frac{24}{25}$$

$$b) \quad \frac{1}{5} + \left(-\frac{2}{15}\right) - \left(-\frac{4}{9}\right)$$

$$\frac{9}{45} + \left(-\frac{6}{45}\right) - \left(-\frac{20}{45}\right)$$

$$\frac{3}{45} - \left(-\frac{20}{45}\right)$$

$$\frac{23}{45}$$

$$c) \quad -\frac{4}{8} \cdot \frac{3}{7} \cdot \left(-\frac{2}{5}\right) = \frac{24}{280} = \frac{3}{35}$$

$$d) \quad \frac{3}{5} \cdot \left(-\frac{2}{7}\right) + \left(-\frac{5}{7}\right) \left(\frac{3}{10}\right)$$

$$-\frac{6}{35} + -\frac{15}{70}$$

$$-\frac{12}{70} + -\frac{15}{70} = -\frac{27}{70}$$

$$e) \quad -8\frac{1}{9} + 3\frac{5}{6}$$

$$-\frac{73}{9} + \frac{23}{6} = \frac{-146}{18} + \frac{69}{18} = \frac{-77}{18} = \left(-4\frac{5}{18}\right)$$

$$f) \quad 2\frac{1}{2} \cdot 4\frac{1}{5} = \frac{5}{2} \cdot \frac{21}{5} = \frac{105}{10} = 10\frac{1}{2}$$

8-97)

a) independent variable is receiving nutritional advice

# of athletes	Received Nutrition Advice	Did not receive nutritional advice
Regularly ate a balanced breakfast	$\frac{46}{135} = 34\%$	$\frac{39}{112} = 35\%$
Often did not eat a balanced breakfast	66%	65%

c) There does not appear to be an association. Only about 35% of athletes eat a balanced breakfast, regardless of whether they received the nutritional advice or not.

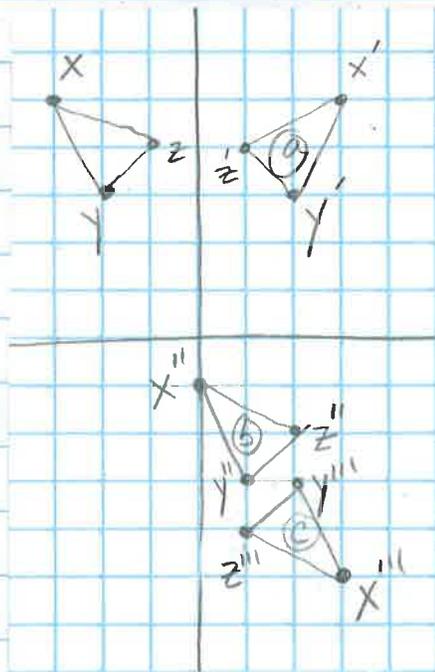
8-98)

a) new  $Z$  is  $Z'(1, 4)$

b) new  $Y$  is  $Y''(1, -3)$

c)  $X(-3, 5)$   $Y(-2, 3)$   $Z(-1, 4)$   
 $X'''(3, -5)$   $Y'''(2, -3)$   $Z'''(1, -4)$

see graph below



$$8-99) \quad a) \quad y = 27 + 43x$$

$$b) \quad 1000 = 27 + 43x$$

$$\begin{array}{r} - 27 \quad - 27 \\ \hline 973 = 43x \\ 43 \quad 43 \end{array}$$

$$22.6 = x$$

so on the 23<sup>rd</sup> day he  
will have more than \$1000