

New Material Final Practice Sheet

Fractions & Mixed #'s

$$100 = 2^2 \cdot 3^2 \cdot 5$$

$$= 180$$

Ex. a) $21\frac{7}{18} - 183\frac{4}{15} + \frac{5}{180} + \frac{180}{180} = \frac{185}{180}$

33	$\frac{137}{180}$
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b) $\frac{8}{15} - \frac{11}{15} = -\left(\frac{11-8}{15}\right) = -\frac{3}{15} = -\frac{1}{5}$

Ex. a) $15\frac{1}{2} \cdot \frac{2}{3} = \frac{31}{2} \cdot \frac{2}{3} = \frac{31}{3} = 10\frac{1}{3}$

b) $\frac{7}{8} \div \frac{4}{5} = \frac{7}{8} \cdot \frac{5}{4} = \frac{35}{32} = 1\frac{3}{32}$

Ex. a) $21\frac{5}{8} = 21.625$

0.625
8 5.000
48
200

b) $\frac{27}{50} = 0.54$

0.54
50 27.00
250
200

c) $\frac{5}{27} = 0.185185$

0.185185
27 5.0000
27
230
216
140
135
480
450
270
230

Ex. a) $2\sqrt{\frac{1}{4}} + \frac{5}{8} \div \frac{1}{2} - \left(\frac{1}{2}\right)^2 = 2\left(\frac{1}{2}\right) + \frac{5}{8} \cdot \frac{2}{1} - \frac{1}{4} = 1 + \frac{5}{4} - \frac{1}{4} = 1\frac{5}{4} - \frac{1}{4} = 1\frac{4}{4} = 2$

Ex. $\frac{1}{2}x - 5 = \frac{2}{3} - \frac{1}{8}x$

$\frac{1}{2}x - 5$	$=$	$\frac{2}{3} - \frac{1}{8}x$
$+\frac{1}{8}x$	$=$	$+\frac{1}{8}x$

$\frac{5}{8}x - 5 = \frac{2}{3}$

$\frac{5}{8}x - 5$	$=$	$\frac{2}{3}$
$+5 = +5$	$=$	$+\frac{17}{3}$
$\frac{5}{8}x = 5\frac{2}{3}$	$=$	$5\frac{17}{3}$

$x = \frac{136}{15} = 9\frac{1}{15}$

Ex. $\left(\frac{2}{3}x^2 + \frac{1}{2}x - 1\right) - \left(\frac{1}{5}x^2 - \frac{3}{4}x + \frac{2}{3}\right)$

$= \left(\frac{10}{15} - \frac{3}{15}\right)x^2 + \left(\frac{2}{4} + \frac{3}{4}\right)x + \left(-1 + -\frac{2}{3}\right)$

$\frac{7}{15}x^2 + \frac{5}{4}x + -\frac{2}{3}$	or	$\frac{7}{15}x^2 + \frac{1}{4}x - \frac{2}{3}$
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Ex. $\frac{2^x}{7} < \frac{3^x}{5}$

Decimals

Ex. 127.2891 | One hundred twenty-seven and two thousand eight hundred ninety-one ten-thousandths.

Ex. two thousand, forty-five and two hundred eighty-seven ten-thousandths

2045.0287

Ex. Nearest 100th: $589.89\overset{\downarrow}{8}1 \Rightarrow 589.90000$

Note: It rounds through!!

Ex. a)
$$\begin{array}{r} 75.198 \\ +1057.900 \\ \hline 1133.098 \end{array}$$

b)
$$\begin{array}{r} 8.900 \\ - 2.758 \\ \hline 6.142 \end{array}$$

Ex. a) $28.5 \times 0.00012 = 0.003420$

$$\begin{array}{r} 285 \\ \times 12 \\ \hline 570 \\ 2850 \\ \hline 3420 \end{array}$$
 with 6 decimals

b) $(1.2)(0.09) = 0.108$

$$\begin{array}{r} 12 \\ \times 9 \\ \hline 108 \end{array}$$
 108 w/ 3 decimals

Ex. a) $27 \div 15 = 1.8$

$$\begin{array}{r} 1.8 \\ 15 \overline{) 27.00} \\ \underline{15} \\ 120 \\ \underline{120} \\ 0 \end{array}$$

b) $2.5 \div 50 = 0.05$

$$\begin{array}{r} 0.05 \\ 50 \overline{) 2.50} \\ \underline{50} \\ 0 \end{array}$$

c) $1.025 \div 0.5 = 2.05$

$$\begin{array}{r} 2.05 \\ 0.5 \overline{) 1.025} \\ \underline{1.0} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

Ex $0.58 = \frac{58 \div 2}{100 \div 2} = \frac{29}{50}$

Ex. $2.871 < 2.971$

Decimals Conid

Ex. $0.1(x + 0.5) = 1.2 - 0.1x$
 $\Rightarrow 0.1x + 0.05 = 1.2 - 0.1x$
 $\quad + 0.1x \qquad \qquad \qquad + 0.1x$

 $0.2x + 0.05 = 1.2$
 $\quad \quad \quad - 0.05 = -0.05$

$0.2 \overline{) 1.150}$
 $\quad \underline{0.2x} = \underline{1.15}$
 $\quad \quad \quad \downarrow \downarrow$
 $\quad \quad \quad \underline{x = 5.75}$

neg $\begin{array}{r} 3.5 \\ -0.1 \\ \hline 3.4 \end{array}$ $\begin{array}{r} 2.52 \\ -0.40 \\ \hline 2.12 \end{array}$

Ex. $(0.1x^2 - 2.52x + 1.1) + (0.1 - 3.5x^2 + 0.4x)$
 $= (0.1 + -3.5)x^2 + (-2.52 + 0.4)x + (1.1 + 0.1)$
 $= \boxed{-3.4x^2 - 2.12x + 1.2}$ or $\boxed{-3.4x^2 - 2.12x + 1.2}$

Ex. $(1.2 + 0.3)^2 \div 0.5 + 0.5 = (1.5)^2 \div 0.5 + 0.5$
 $= 2.25 \div 0.5 + 0.5 = 4.5 + 0.5 = \boxed{5.0}$

Ex. a) $2.5 \times 10^4 = \boxed{25000}$ (4 places right) b) $0.025 \times 10^2 = \boxed{0.00025}$ (2 places left)

Ex. a) $3.5 \times 10^{-4} = \boxed{0.00035}$ (Note # between 1 & 10, 4 places to left to get back)
 b) $7.85832 \times 10^5 = \boxed{785832}$ (Note # between 1 & 10, 5 places to right to get back)

Percentages

Ex. $0.375 = \boxed{37.5\%}$ or $\boxed{37\frac{1}{2}\%}$ (2 places right)

Ex. $25\% = \boxed{0.25}$ (2 places left)

Ex. $15\% = \frac{15 \div 5}{100 \div 5} = \boxed{\frac{3}{20}}$ (part)

Ex. a) $\frac{2}{3} = 0.6666 = \boxed{66.\overline{6}\%}$ or $\boxed{66\frac{2}{3}\%}$
 b) $\frac{3}{25} \cdot 4 = \frac{12}{100} = \boxed{12\%}$
 or $\frac{0.12}{25 \div 2} = \frac{0.12}{12.5} = 12\%$

Percentages Conid

Ex. a) What is 25% of 15?

25 % of 15 is x

$$\begin{array}{r} 25 \\ \times 15 \\ \hline 75 \\ 300 \\ \hline 375 \end{array}$$

$$(0.25)(15) = x$$

$$\boxed{x = 3.75}$$

or

$$\frac{1}{4}(15) = x$$

or

$$\frac{15}{4} = x$$

$$\Rightarrow \boxed{x = 3\frac{3}{4} = 3.75}$$

b) What number is 15% of 60?

15 % of 60 is x

$$\begin{array}{r} 0.15 \\ \times 60 \\ \hline 900 \end{array}$$

$$(0.15)(60) = x$$

$$\boxed{9 = x}$$

or

$$\frac{15}{100} \cdot 60 = x$$

$$\frac{3}{20} \cdot \frac{60}{1} = x$$

$$\frac{180}{20} = x$$

$$9 = x$$

I really meant a) or b) to be a different type. Here's b) as the type I meant
60 is what 15% of what number?

15 % of x is 60

$$\begin{array}{r} 400 \\ 0.15 \overline{) 60.00} \\ \underline{6000} \\ 000 \end{array}$$

$$\frac{0.15x = 60}{0.15 \quad 0.15}$$

$$\boxed{x = 400}$$

$$\text{or } \frac{20}{3} \cdot \frac{15}{100} x = 60 \cdot \frac{20}{3}$$

$$\boxed{x = 400}$$

c) 15 is what % of 45?

x % of 45 is 15

$$\frac{45x}{45} = \frac{15}{45 \div 3}$$

$$x = \frac{3}{9} = \frac{1}{3} = 0.3333$$

$$x = 33.\overline{3}\% \text{ or } 33\frac{1}{3}\%$$