

Directions: Answers all questions showing work if needed. Partial credit may be given for correct work. This is an **open** note quiz. NOT OPEN BOOK OR OPEN COMPUTER. Soon you will have a closed note quiz like this.

1. Multiply or divide the following problem, cancel units if possible (reduce) 1 pt

- $(5/6) * (2/3)$
- $(5/6) / (2/3)$
- $(4/x) * (z/y)$
- $(4/x) / (z/y)$
- $(33/43) * ((zxy)/3)$
- $(33/43) / ((zxy)/3)$
- $(x*y/z*t) * ((y*r)/z)$
- $((x+3)/u) * (3+4)/2u$
- $((x+3)/u) / (3+4)/2u$

2. Multiply the following problem, cancel units if possible (reduce) 1

- $(18 \text{ kilograms}/2 \text{ meters}) * (5 \text{ kilograms}/2 \text{ meters})$
- $(56 \text{ bushels}/\text{acre}) * (32 \text{ ounces}/\text{acre})$
- $(5280 \text{ ft}/1 \text{ hr}) * (65 \text{ sec}/3 \text{ miles})$
- $(18 \text{ pounds}/2 \text{ in}^2) * (5 \text{ mew}/\text{second})$

3. Divide the following problem, cancel units if possible (reduce) 1

- $(18 \text{ kilograms}/2 \text{ meters}) / (5 \text{ kilograms}/2 \text{ meters})$
- $(56 \text{ bushels}/\text{acre}) / (32 \text{ ounces}/\text{acre})$
- $(32 \text{ bushels}/2 \text{ acres}) / (34 \text{ gallons}/\text{acre})$
- $(9 \text{ m}/\text{sec}) / (3 \text{ m}/\text{sec})$

4. Make a common denominator for the following and combine 1

- $(4/5) + (1/3)$
- $(2/3) + (1/4)$
- $(2/x) + (2/y)$
- $(z/c) + (2/(c*s))$
- $(z/c) - (2/(c*s))$
- $((6+4)/r) - (1/xyz)$
- $(r/vb) + (1/cb)$
- $((5x)/z) - (45/xy)$
- $(3 \text{ meters}/\text{sec}) + (4 \text{ kg}/1 \text{ in}^2)$
- $(5 \text{ watts}/1 \text{ util}) - (4 \text{ watts}/1 \text{ watson})$
- $(25 \text{ watts}/1 \text{ sec}) - (1 \text{ gallon}/1 \text{ in})$

5. Change the following into a percent:

- 6000
- .0045
- 543000
- 0.034
- 1.04

6. Change the following into a number:

- a. 0.0785%
- b. 56000%
- c. 104%
- d. 1004%
- e. 0.034%
- f. 0.56%

7. $1/16$ is what percent rounded to the hundredths place 1

8. One is equal to _____ percent. 1

9. Challenge Problems using +/- and x and /

- a. $((2x/y) + 1) / ((2y/x) - 1)$
- b. $((2/3) - (2/x)) / ((x-3)/x)$
- c. $((5/x) + (x/y)) * ((x/y) - (5/y))$
- d. $((x-4)/5) * ((5/6) + (x/y))$
- e. $(4/5) / ((5/x) * (y/zx))$
- f. $((x/c) + (6/x)) - ((f/x) + (5/6))$

$$A. \frac{5}{3} \times \frac{12}{3} = \left(\frac{5}{9} \right)$$

#1

$$B. \frac{5}{2} \times \frac{3}{2} = \frac{5}{4} = \left(1\frac{1}{4} \right)$$

$$C. \frac{4}{x} \cdot \frac{z}{y} = \boxed{\frac{4 \cdot z}{x \cdot y} = \frac{4z}{xy}}$$

$$D. \frac{4}{x} \div \frac{z}{y} = \frac{4}{x} \times \frac{y}{z} = \boxed{\frac{4y}{xz}}$$

$$E. \frac{33}{43} \cdot \frac{zxy}{3} = \boxed{\frac{11 \cdot z \cdot x \cdot y}{43}}$$

$$F. \frac{33}{43} \div \frac{zxy}{3} = \frac{33}{43} \times \frac{3}{zxy} = \boxed{\frac{99}{43zxy}}$$

$$G. \frac{x \cdot y}{z \cdot t} \cdot \frac{y \cdot r}{z} = \frac{x \cdot y \cdot y \cdot r}{z \cdot t \cdot z} = \boxed{\frac{x \cdot y^2 \cdot r}{z^2 \cdot t}}$$

$$h. \frac{x+3}{u} \cdot \frac{3+4}{2u} = \frac{(x+3) \cdot 7}{2u \cdot u} = \frac{7x+21}{2u^2} \quad (\#1)$$

$$i. \frac{x+3}{u} \div \frac{3+4}{2u} = \frac{x+3}{u} \cdot \frac{2 \cdot \cancel{u}}{3+4} = \frac{(x+3) \cdot 2}{7} = \frac{2x+6}{7}$$

$$2.A. \frac{18 \text{ Kg}}{2 \text{ m}} \cdot \frac{5 \text{ Kg}}{2 \text{ m}} = \frac{90 \text{ Kg} \cdot \text{Kg}}{4 \cdot \text{m} \cdot \text{m}} = \frac{90 \text{ Kg}^2}{4 \text{ m}^2}$$

$$2.B. \frac{56 \text{ bu}}{1 \text{ acre}} \cdot \frac{32 \text{ oz}}{1 \text{ acre}} = \frac{56 \cdot \text{bu} \cdot 32 \cdot \text{oz}}{\text{acre} \cdot \text{acre}} = \frac{1792 \cdot \text{bu} \cdot \text{oz}}{\text{acre}^2}$$

$$2.C. \frac{1760}{5280 \text{ ft}} \cdot \frac{65 \text{ sec}}{1 \frac{1}{3} \text{ miles}} = \frac{1760 \cdot \text{ft} \cdot 65 \cdot \text{sec}}{1 \cdot \text{hr} \cdot 1 \cdot \text{miles}} =$$

$$\frac{114400 \cdot \text{ft} \cdot \text{sec}}{1 \cdot \text{hr} \cdot \text{miles}}$$

2d. $\frac{9 \text{ lbs}}{1 \cancel{2} \text{ in}^2} \cdot \frac{5 \text{ mew}}{1 \text{ sec}} = \frac{9 \cdot 1 \text{ lbs} \cdot 5 \cdot \text{mew}}{1 \cdot \text{in}^2 \cdot 1 \cdot \text{sec}} =$

2. in²

$$\frac{45 \cdot \text{lbs} \cdot \text{mew}}{1 \text{ in}^2 \cdot \text{sec}}$$

3A. $\frac{18 \text{ Kg}}{2 \text{ m}} \div \frac{5 \text{ Kg}}{2 \text{ m}} = \frac{18 \cancel{\text{Kg}}}{\cancel{2 \text{ m}}} \times \frac{2 \cancel{\text{m}}}{5 \text{ Kg}} = \boxed{\frac{18}{5}}$

3B. $\frac{56 \text{ bu}}{1 \text{ acre}} \div \frac{32 \text{ oz}}{1 \text{ acre}} = \frac{56 \cancel{\text{bu}}}{\cancel{1 \text{ acre}}} \times \frac{1 \cancel{\text{acre}}}{32 \text{ oz}} = \boxed{\frac{7 \text{ bu}}{4 \text{ oz}}}$

3C. $\frac{32 \text{ bu}}{2 \text{ acre}} \div \frac{34 \text{ gal}}{1 \text{ acre}} = \frac{32 \cancel{\text{bu}}}{\cancel{2 \text{ acre}}} \times \frac{1 \cancel{\text{acre}}}{34 \text{ gal}} = \frac{8 \text{ bu}}{17 \text{ gal}}$

$$\boxed{\frac{8 \text{ bu}}{17 \text{ gal}}}$$

$$3d. \frac{9m}{1sec} \div \frac{3m}{1sec} = \frac{39m}{1sec} \times \frac{1sec}{3m} = \frac{3}{1} = \boxed{3}$$

$$4. a \left(\frac{3}{3} \cdot \frac{4}{3} \right) + \left(\frac{1}{3} \cdot \frac{5}{5} \right) = 15$$

$$\frac{12}{15} + \frac{5}{15} = \boxed{\frac{17}{15}}$$

$$46. \frac{2}{3} + \frac{1}{4} = \left(\frac{4}{4} \cdot \frac{2}{3} \right) + \left(\frac{1}{4} \cdot \frac{3}{3} \right)$$

$$\frac{8}{12} + \frac{3}{12} = \boxed{\frac{11}{12}}$$

$$4c. \frac{2}{x} + \frac{2}{y} = \left(\frac{y}{y} \cdot \frac{2}{x} \right) + \left(\frac{2}{y} \cdot \frac{x}{x} \right)$$

$$\frac{2y}{yx} + \frac{2x}{yx} = \boxed{\frac{2y + 2x}{yx}}$$

$$4d. \frac{z}{c} + \frac{2}{c \cdot s} = \left(\frac{s}{s} \cdot \frac{z}{c} \right) + \frac{2}{cs}$$

$$\frac{s \cdot z}{cs} + \frac{2}{cs} = \boxed{\frac{z + sz}{cs}} \text{ or } \frac{sz + 2}{cs} \text{ or } \frac{sz + 2}{sc}$$

4e. Same as 4d except order matters

$$\frac{z}{c} - \frac{2}{cs} = \left(\frac{s}{s} \cdot \frac{z}{c} \right) - \frac{2}{cs} = \boxed{\frac{s \cdot z - 2}{cs}}$$

$$4f. \frac{10}{r} - \frac{1}{xyz} = \left(\frac{xyz \cdot 10}{xyz \cdot r} \right) - \left(\frac{1 \cdot r}{xyz \cdot r} \right)$$

$$\boxed{\frac{10xyz - 1r}{xyzr} \text{ or } \frac{10xyz - r}{xyzr}}$$

$$4g. \frac{r}{vb} + \frac{1}{cb} = \left(\frac{c}{c} \cdot \frac{r}{vb} \right) + \left(\frac{1}{cb} \cdot \frac{v}{v} \right) =$$

$$\frac{cr}{cvb} + \frac{v}{cvb} = \boxed{\frac{cr+v}{cvb}}$$

$$4h. \frac{5x}{z} - \frac{45}{xy} = \left(\frac{xy}{xy} \cdot \frac{5x}{z} \right) - \left(\frac{45 \cdot z}{xy \cdot z} \right) =$$

$$\frac{5x^2y}{xyz} - \frac{45z}{xyz} = \boxed{\frac{5x^2y - 45z}{xyz}}$$

$$4i. \frac{3m}{1sec} + \frac{4Kg}{1in^2} = \left(\frac{in^2}{in^2} \cdot \frac{3m}{1sec} \right) + \left(\frac{4Kg}{1in^2} \cdot \frac{sec}{sec} \right)$$

$$\frac{3m \cdot in^2}{in^2 \cdot sec} + \frac{4Kg \cdot sec}{in^2 \cdot sec} = \boxed{\frac{3m \cdot in^2 + 4Kg \cdot sec}{in^2 \cdot sec}}$$

$$4j. \quad \frac{5 \text{ watt}}{1 \text{ util}} - \frac{4 \text{ watt}}{1 \text{ watson}} = \left(\frac{\text{watt}}{\text{watt}} \cdot \frac{5 \text{ watt}}{1 \text{ util}} \right) - \frac{4 \text{ watt}}{1 \text{ watson}}$$

$$\left(\frac{4 \text{ watt}}{1 \text{ watson}} \cdot \frac{\text{util}}{\text{util}} \right) = \frac{5 \text{ watson} \cdot \text{watt}}{\text{watson} \cdot \text{util}} - \frac{4 \text{ watt} \cdot \text{util}}{\text{watson} \cdot \text{util}}$$

$$4k. \quad \frac{25 \text{ w}}{1 \text{ sec}} - \frac{1 \text{ gal}}{1 \text{ in}} = \left(\frac{\text{in}}{\text{in}} \cdot \frac{25 \text{ w}}{\text{sec}} \right) + \left(\frac{1 \text{ gal}}{1 \text{ in}} \cdot \frac{\text{sec}}{\text{sec}} \right)$$

$$\frac{25 \text{ w} \cdot \text{in}}{\text{in} \cdot \text{sec}} - \frac{1 \text{ gal} \cdot \text{sec}}{1 \text{ in} \cdot \text{sec}} = \frac{25 \text{ w} \cdot \text{in} - 1 \text{ gal} \cdot \text{sec}}{\text{in} \cdot \text{sec}}$$

5A. 600000%

B. 0.45%

C. 54300000%

D. 3.4%

E. 104%

6a. 0.000785

B. 560

C. 1.04

D. 10.04

E. 0.00034

F. 0.0056

7. 0.06

8. 100%

$$9A. \frac{2x}{y} + \left(\frac{1}{1} \cdot \frac{y}{y} \right) = \frac{2x}{y} + \frac{y}{y} = \frac{2x+y}{y}$$

$$\frac{2y}{x} + \left(\frac{1}{1} \cdot \frac{x}{x} \right) = \frac{2y}{x} + \frac{x}{x} = \frac{2y+x}{x}$$

$$\frac{2x+y}{y} = \frac{2y+x}{x} = \frac{2x+y}{y} \cdot \frac{x}{2y+x}$$

$$\frac{(2x+y) \cdot x}{(2y+x) \cdot y}$$

$$9B. \left(\frac{2}{3} - \frac{2}{x} \right) = \left(\frac{x}{x} \cdot \frac{2}{3} \right) - \left(\frac{2}{x} \cdot \frac{3}{3} \right)$$

~~$\frac{x \cdot 2}{x \cdot 3}$~~

$$\frac{2x}{3x} - \frac{6}{3x} =$$

$$\frac{2x-6}{3x} = \frac{x-3}{x} = \frac{(2x-6)}{3x} \cdot \frac{x}{x-3} =$$

$\frac{2x-6 \cdot x}{3x \cdot (x-3)}$	Factor out or	$\frac{2x}{3x}$	or $\frac{2}{3}$
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$$9c. \quad \frac{5}{x} + \frac{x}{y} = \left(\frac{y}{y} \cdot \frac{5}{x} \right) + \left(\frac{x}{y} \cdot \frac{x}{x} \right) =$$

$$\frac{5y}{yx} + \frac{x^2}{yx} = \frac{(5y + x^2)}{yx}$$

$$\cdot \quad \frac{x}{y} - \frac{5}{y} = \frac{x-5}{y}$$

$$\frac{x-5}{y}$$

5c.

$$\frac{5y + x^2}{yx} \cdot \frac{x-5}{y} = \frac{(5y + x^2) \cdot (x-5)}{y \cdot y}$$

$$9d. \quad \frac{5}{6} + \frac{x}{y} = \left(\frac{y}{y} \cdot \frac{5}{6} \right) + \left(\frac{x}{y} \cdot \frac{6}{6} \right)$$

$$\frac{5y}{6y} + \frac{6x}{6y} = \frac{5y + 6x}{6y}$$

$$\frac{x-4}{5} \cdot \frac{5y+6x}{6y}$$

$$= \frac{(x-4) \cdot (5y+6x)}{30y}$$

$$9e. \quad \frac{4}{5} \quad \frac{5}{x} - \frac{y}{2x} = \left(\frac{2}{2} \cdot \frac{5}{x} \right) - \frac{y}{2x} =$$

$$\frac{5 \cdot 2}{2x} - \frac{y}{2x} = \frac{5 \cdot 2 - y}{2x}$$

$$\frac{4}{5} \div \frac{5 \cdot 2 - y}{2x} = \frac{4}{5} \cdot \frac{2x}{5 \cdot 2 - y}$$

$$\boxed{\frac{4 \cdot 2x}{5(5 \cdot 2 - y)}}$$

$$9f. \quad \frac{x}{c} + \frac{6}{x} = \left(\frac{x}{x} \cdot \frac{x}{c} \right) + \left(\frac{6}{x} \cdot \frac{c}{c} \right) = \frac{x^2}{xc} + \frac{6c}{xc} =$$

$$\frac{x^2 + 6c}{xc}$$

$$\frac{f}{x} + \frac{5}{c} = \left(\frac{c}{c} \cdot \frac{f}{x} \right) + \left(\frac{5}{c} \cdot \frac{x}{x} \right) = \frac{cf}{cx} + \frac{5x}{cx} =$$

$$\frac{cf + 5x}{cx}$$

$$\frac{x^2 + 6c}{xc} - \frac{cf + 5x}{cx} = \left(\frac{c}{c} \cdot \frac{x^2 + 6c}{xc} \right) - \left(\frac{c}{c} \cdot \frac{cf + 5x}{cx} \right)$$

$$\frac{c(x^2 + 6c) - c(cf + 5x)}{cx}$$