Gonzalez, Fall 2009
Math 351

+68 possible

Name Key

Test #2

Directions: Please show all your work since partial credit is given. Answers without the necessary work will receive no credit. And remember, have fun!

1. Simplify completely.

+2 **a)** $\frac{150abc}{45ac}$

$\frac{10b}{3}$

$\frac{150abc}{45ac} \div \frac{15}{15} = \frac{10b}{3}$

+2 **b)** $\frac{4}{15}(45x) = \frac{4}{15} \cdot \frac{45x}{1} = \frac{12x}{1}$

$12x$

+2 **c)** $\frac{15}{16} \div \frac{25}{32}$

$\frac{6}{5}$

$\frac{15}{16} \cdot \frac{32}{25} = \frac{3 \cdot 32}{16 \cdot 5} = \frac{96}{80}$

$= \frac{3 \cdot 32}{16 \cdot 5} = \frac{3 \cdot 2}{5} = \frac{6}{5}$

+2 **d)** $\frac{12}{x} - \frac{9}{x} = \frac{3}{x}$

+2 **e)** $-6 + \frac{3}{4}$

$-\frac{21}{4}$ or $-5\frac{1}{4}$

$-\frac{24}{4} + \frac{3}{4} = \frac{-21}{4}$

+2 **f)** $\frac{7}{15} + \frac{2}{3} + \frac{4}{5}$

$\frac{29}{15}$

$\frac{7}{15} + \frac{10}{15} + \frac{12}{15}$

$\frac{17+12}{15} = \frac{29}{15}$

+12

2. Convert the following to improper fractions.

+2 a) $4\frac{3}{5}$

$= \frac{4 \cdot 5 + 3}{5}$

$\boxed{\frac{23}{5}}$

+2 b) $-12\frac{3}{4}$

$= -\frac{4 \cdot 12 + 3}{4}$

$= \boxed{-\frac{51}{4}}$

3. A board that was $95\frac{3}{8}$ inches long had a piece, $3\frac{15}{16}$ inches long, cut off from one end. What is the length of the board now?

+2

$95\frac{3}{8} - 3\frac{15}{16} = \frac{763}{8} - \frac{63}{16}$

$= \frac{1526}{16} - \frac{63}{16}$

$\boxed{= \frac{1463}{16} = 91\frac{7}{16} \text{ inches}}$

+2 **4.** A recipe calls for $1\frac{3}{4}$ cups of sugar. How much sugar is needed if the recipe is ~~tripled~~?

$\boxed{5\frac{1}{4} \text{ cups}}$

$\left(1\frac{3}{4}\right) \cdot 3$

$\frac{7}{4} \cdot \frac{3}{1} = \frac{21}{4}$

$= 5\frac{1}{4}$

+8

5. Simplify the following expressions. Make sure to reduce all fractions to lowest terms.

+2 a) $6 \div 2\frac{1}{4}$ _____

$6 \div \left(\frac{9}{4}\right) = \frac{6}{1} \cdot \frac{4}{9}$

$= \boxed{\frac{8}{3} \text{ or } 2\frac{2}{3}}$

+2 b) $5+3\left(5\frac{1}{2}\right)$ _____

$5 + \frac{3}{1} \cdot \frac{11}{2}$

$= 5 + \frac{33}{2}$

$= \frac{10}{2} + \frac{33}{2}$

$= \boxed{\frac{43}{2} \text{ or } 21\frac{1}{2}}$

+2 c) $4\frac{2}{9} - 1\frac{7}{18}$ _____

$\frac{38}{9} - \frac{25}{18}$

$\frac{76}{18} - \frac{25}{18}$

$\frac{51}{18} \div 3$

$\boxed{\frac{17}{6}}$

+2 d) $\left(\frac{1}{10}+2\frac{3}{5}\right)\left(3\frac{1}{2}-1\frac{2}{3}\right)$ _____

$\left(\frac{1}{10} + \frac{28}{10}\right) \cdot \left(\frac{21}{6} - \frac{10}{6}\right)$

$\frac{27}{10} \cdot \frac{11}{6} = \frac{297}{60}$

$\boxed{\frac{99}{20} \text{ or } 4\frac{19}{20}}$

or $\frac{297}{60}$

+8

+2 6. A basketball team missed about $\frac{3}{5}$ of their 85 free throws in a game. How many free throws did they *make*?

17

Misses $\frac{85}{1} \cdot \frac{3}{5} = \frac{85 \cdot 3}{15} = 17 \cdot 3 = 51$

Made $= 85 - 51 = 34$

34 makes

+2 7. A rope $12\frac{2}{3}$ feet long is divided into 5 pieces. How long is each piece?

$\left(12\frac{2}{3}\right) \div 5 = \frac{38}{3} \cdot \frac{1}{5} = \frac{38}{15}$

$\frac{38}{15}$ or $2\frac{8}{15}$ feet

8. Evaluate each expression for the given value.

+2 a) $4y - 12$ if $y = -5$ _____

$4 \cdot (-5) - 12$

$-20 - 12$

-32

+2 b) $-x + 3$ if $x = -2$ _____

$-(-2) + 3$

$2 + 3$

5

+8

9. Simplify completely.

a) $7x - 3x + 7 - 9$ _____

$4x - 2$ +2

b) $4(2y - 2) + 5(y + 2)$ _____

$8y - 8 + 5y + 10$ +2

$13y + 2$

c) $0.46 + 1.058 + 5$ 6.518

$$\begin{array}{r} {\scriptstyle 1} \\ 5.000 \\ 0.460 \\ +\ 1.058 \\ \hline 6.518 \end{array}$$

+2

d) $9.758 - 12.022$ $= -2.264$

$$\begin{array}{r} 12.022 \\ -\ 9.758 \\ \hline 2.264 \end{array}$$

+2

+8

e) $(-5.05)(-0.074)$ **+0.3737**

$$\begin{array}{r} {}^{3}5.05 \\ \times 0.074 \\ \hline 2020 \\ 35350 \\ \hline .37370 \end{array}$$

+2

f) $8.184 \div (-3.1)$ **= −2.64**

$$\frac{8.184}{-3.1} = -\frac{81.84}{31}$$ +2

$$\begin{array}{r} 2.64 \\ 31\overline{)81.84} \\ -62\downarrow \\ \hline 198 \\ 186 \\ \hline 124 \\ -124 \\ \hline 0 \end{array}$$

g) $4.2 - 4(0.16)$ _____

$4.2 - 0.64$ +2

3.56

h) $45.45 + 3(2.1 - 3.75)$ **40.5**

$45.45 + 3 \cdot (-1.65)$ +2

$45.45 - 4.95$

40.5

+8

10. Is $t = 3$ a solution to $2t - 5 = 11$? Why or why not? No

$+2 \quad 2 \cdot 3 - 5 = 6 - 5 = 1 \neq 11$

11. Solve the following equations.

a) $2a - 6a + a = 15$

$-4a + 1a = 15$

$-3a = 15$

$+2$

$\frac{-3a}{-3} = \frac{15}{-3}$

$a = -5$

b) $3(b - 7) - 2b = -24$

$3b - 21 - 2b = -24$

$b - 21 = -24$

$+2 \quad +21 \quad +21$

$b = -3$

c) $4(3b - 4) + 14 = 22$

$12b - 16 + 14 = 22$

$+2 \quad 12b - 2 = 22$

$+2 \quad +2$

$\frac{12b}{12} = \frac{24}{12}$

$b = 2$

d) $-6x + 4 = 26$

$-4 \quad -4$

$\frac{-6x}{-6} = \frac{22}{-6}$

$+2 \quad +6$

$x = \frac{-22}{6} \div 2$

$\div 2$

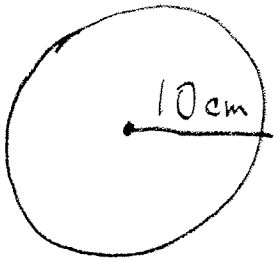
$x = \frac{-11}{3}$ or $-3\frac{2}{3}$

+10

12. The following questions are about a circle with radius 10 centimeters (cm). Use the approximation $\pi \approx 3.14$ in your calculations.

a) Draw the circle, and clearly label the radius.

+2



b) Find the circumference of the circle. Make sure to include the appropriate units.

+2

$C =$ 62.8 cm

$C = \pi \cdot D$

$= (3.14) \cdot 20$

$= 62.8$

Diameter = 2 · (radius)

$D = 2 \cdot 10 = 20$

3.14
× 20
62.80

c) Find the area of the circle.

+2

$A =$ 314 cm^2

$A = \pi \cdot r^2$

$= 3.14 \cdot (10)^2$

$= 3.14 \cdot (100)$

$= 314$

+6