Name MIGUEL CHRISTOPHER MAT 101

Date QUIZ

CHAPTER 7.1-Linear Equations

Directions: Make sure to answer each problem completely and show work.

1. Solve each equation

a. $8 - 8x = 16$

$-8x + 8 = 16$

$-8 \quad -8$

$\frac{-8x}{-8} = \frac{8}{-8}$

$x = -1$

b. $7x - 5x = x + 8$

$2x = x + 8$

$-x \quad -x$

$x = 8$

c. $4(x - 2) + 2(x + 3) = 6$

$4x - 8 + 2x + 6 = 6$

$6x - 2 = 6$

$+2 = 2$

$\frac{6x}{6} = \frac{8}{6}$ simplify

$x = \frac{4}{3}$

d. $6x - 4(3 - 2x) = 5(x - 4) - 10$

$6x - 12 + 8x = 5x - 20 - 10$

$14x - 12 = 5x - 30$

$+12 \quad +12$

$14x = 5x - 18$

$-5x \quad -5x$

$9x = -18$

$\frac{9x}{9} = \frac{-18}{9}$

$x = -2$

e. $-3x + 6 - 5(x - 1) = (2x - 4) - 5x + 5$

$-3x + 6 - 5x + 5$

Eliminate Parenth.

$-8x + 11 = (2x - 4) - 5x + 5$

Combine Like Terms

$-8x + 11 = 2x - 4 - 5x + 5$

$-8x + 11 = -3x + 1$

$+3x - 11 \quad +3x - 11$

$\frac{-5x}{-5} = \frac{-10}{-5}$

$x = -2$

f. $\frac{3x}{4}+\frac{5x}{2}=13$

4 LCD

$\frac{3x+2\cdot 5x}{4}=13$

multiply all term by 4 to eliminate fraction

$13x=4\cdot 13 \Rightarrow \frac{13x}{13}=\frac{52}{13}$ dividing

$x=4$

$\frac{3x+2\cdot 5x}{4}=13$

combine

$\frac{3x+10x}{4}=13$

$\frac{13x}{4}=13$

$4\cdot\frac{13x}{4}=4\cdot 13$ cancel

$x=4$

combine fraction with LCD

$\frac{3x+2\cdot 5x}{4}=13$

$\frac{3x}{4}+\frac{2\cdot 5}{4}=13$

g. $\frac{x-8}{5}+\frac{8}{5}=-\frac{x}{3}$

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

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

$x=\frac{-x}{3}$ mult

$3x=3\cdot\frac{-x}{3}$ cancle

$3x=-x$

$+x=+x$

$\frac{4x}{4}=\frac{0}{4}$

$x=\frac{0}{4}$

h. $\frac{3x+7}{6}+\frac{x+7}{6}=\frac{x+6}{4}$

$3x + \frac{7}{6} + x + \frac{7}{6} = x + \frac{6}{4}$

$4x \frac{7}{3} = x + \frac{3}{2}$

$-\frac{7}{3}$ $= x + \frac{3}{2} - \frac{7}{3}$

$\frac{9}{6} - \frac{14}{6}$

$4x = x - \frac{5}{6}$

$-x \quad -x$

$\frac{3x}{3} = \frac{-5/6}{3}$ $x = \frac{-5}{18}$

multiply denominator

i. $0.05x + 0.12(x + 5000) = 940$

$0.05x + 0.12x + 600 = 940$

$0.17x + 600 = 940$

$-600 \quad -600$

divide $\frac{0.17x}{0.17x} = \frac{340}{0.17}$

$340 \overline{)0.178}$ 3 decimal points

$x = 2000$

j. $0.05x + 0.10(200 - x) = 0.45x$

Reverse $0.05x + 20 + -0.1x = 0.45x$

$20 + 0.05x + -0.1x = 0.45x$

$20 + -0.05x = 0.45x$

$-0.45x \quad -0.45x$

$-0.5x$

$20 + -0.5x = 0$

$-20 \quad -20$

$\frac{-0.5x}{-0.5} = \frac{-20}{-0.5}$

$x = 40$

2. Solve each formula for the specified variable.

a. $d = rt$; *solve for* t

Rewrite $\frac{R}{R}T = \frac{D}{R}$ $\quad T = \frac{D}{R}$

b. $A = \frac{1}{2}bh$; *solve for* b

$\frac{\frac{1}{2}bh}{\frac{1}{2}} = \frac{A}{\frac{1}{2}}$ $\quad \frac{A}{1} \div \frac{1}{2} \cdot \frac{2}{1} = \frac{2A}{1}$

$\frac{bh}{h} = \frac{2A}{h} \rightarrow b = \frac{2A}{h}$

c. $V = \frac{1}{3}\pi r^2 h$; *solve for* h

Canceling out the fraction is what I remember by multiply the denominator about what you said in class in some problems

$3 \cdot V = 3 \cdot \frac{1}{3}\pi r^2 h$ looks like calculous

and I just do what you did in previous problems divide $3V$ and on other side of equal sign

separate h divide by πr^2

mult. $\frac{1}{\pi r^2} \cdot 3V \quad 2\pi r^2 h \cdot \frac{1}{\pi r^2}$

$\frac{3V}{\pi r^2} = h$

d. $F = \frac{9}{5}C + 32$; *solve for C*

Reverse

$F - 32 = \frac{9}{5}C$

$\frac{5}{9}(F-32) = C$

e. $S = 2\pi r^2 + 2\pi rl$; *solve for l*

$S = 2\pi r^2 + 2\pi rL$

$-2\pi r^2 \quad -2\pi r^2$

Rewrite → Isolate L

$\frac{S - 2\pi r^2}{2\pi R} = \frac{2\pi rL}{2\pi R}$

$\frac{S-2\pi r^2}{2\pi r} = L$