9/17/2012 Review Chapter 4 Exam 2 Review

Math 1010

Review Chapter 4

Pg 258

#8 $5x + y = 12$

$2x - 2y = 0$

Solve with Substitution

$5x + y = 12$

$-5x \quad -5x$

$y = 12 - 5x$

other equation

$2x - 2(\quad) = 0$

$2x - 2(12 - 5x) = 0$

$2x - 24 + 10x = 0$

$12x - 24 = 0$

$+24 \quad +24$

$12x = 24$

$x = 2$

$y = 12 - 5(2)$

$y = 12 - 10$

$y = 2$

$(2, 2)$

#15 $\frac{1}{8}x + \frac{1}{6}y - \frac{2}{3}z = -1$ LCD: 6

$-\frac{3}{4}x - \frac{1}{3}y - \frac{1}{4}z = 3$ LCD: 12

$\frac{1}{2}x + \frac{3}{2}y + \frac{3}{4}z = 21$ LCD: 4

$2x + y - 4z = -6$ ← EQ1

$-9x - 4y - 3z = 36$

$2x + 6y + 3z = 84$

1st Pick equation & variable to work with.

pick: Eliminate y using EQ1

Eq 1 & Eq 2

$4(2x + y - 4z = -6)$

$8x + 4y - 16z = -24$

$-9x - 4y - 3z = 36$

$-x - 19z = 12$ *

Eq 1 & Eq 3

$-6(2x + y - 4z = -6)$

$-12x - 6y + 24z = 36$

$2x + 6y + 3z = 84$

$-10x + 27z = 120$ *

$-x - 19z = 12 \rightarrow -x = 19z + 12$

$-10x + 27z = 120 \qquad x = -19z - 12$

$-10(-19z - 12) + 27z = 120$

$190z + 120 + 27z = 120$

$217z + 120 = 120$

$-120 \quad -120$

$\frac{217z}{217} = \frac{0}{217}$

$z = 0$

$0 = 15$

$15 = 0$

$x = -19(0) - 12$

$x = -12$

$2x + 6y + 3z = 84$

$2(-12) + 6y + 3(0) = 84$

$-24 + 6y = 84$

$+24 \quad +24$

$\frac{6y}{6} = \frac{108}{6}$

$y = 18$

$(-12, 18, 0)$

$(217x - 112y = -378) * -10$

$2170x + 1610y = 3318 \Rightarrow -2170x + 1120y = 3780$

$2170x + 1610y = 3318$

$\frac{2730y}{2730} = \frac{7098}{2730}$

$2170x + 1610(2.6) = 3318$

$y = 13/5$

$= 2.6$ ✓

$2170x + 4186 = 3318$

$-4186 \quad -4186$

$\frac{2170x}{2170} = \frac{-868}{2170}$

$x = -0.4$

$62(-0.4) - 14(2.6) + 24z = -18$

$-24.8 - 36.4 + 24z = -18$

$\vdots$

$z = 1.8$

$(-0.4, 2.6, 1.8)$

18

$6.2x - 1.4y + 2.4z = -1.80$ by 10

$3.1x + 2.8y - 8.2z = 5.68$ by 100

$9.3x - 8.4y - 4.8z = -34.20$ by 10

$$62x - 14y + 24z = -18 \quad \text{Eq 1}$$
$$310x + 280y - 20z = 568 \quad \text{Eq 2}$$
$$93x - 84y - 48z = -342 \quad \text{Eq 3}$$

Eliminate z

Eq 1 & Eq 3

$$\begin{cases} (62x - 14y + 24z = -18)\,2 \\ 93x - 84y - 48z = -342 \end{cases} \Rightarrow \begin{array}{l} 124x - 28y + 48z = -36 \\ 93x - 84y - 48z = -342 \end{array}$$

$$217x - 112y = -378$$

Eq 2 & Eq 1

$$\begin{cases} (62x - 14y + 24z = -18)\,5 \\ (310x + 280y - 20z = 568)\,6 \end{cases} \Rightarrow \begin{array}{l} 310x - 70y + 120z = -90 \\ 1860x + 1680y - 120z = 3408 \end{array}$$

$$2170x + 1610y = 3318$$