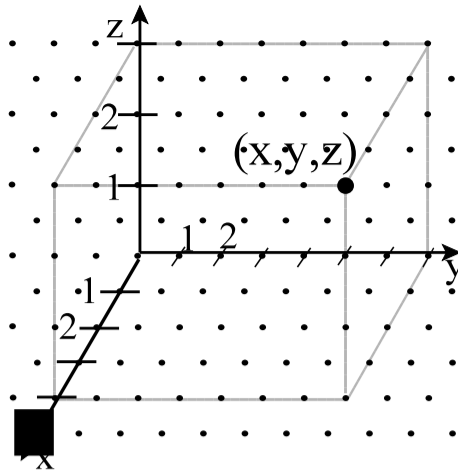


1. The Point graphed is (4, 7, 3)



2. Multiply $3x + 2y = 12$ by 2 to make an equivalent equation

(ie. It will produce the same graph)

{you could use any value.}

ans: (if by 2) $6x + 4y = 24$

3. Divide $4x - 6y = 10$ by some value to make an equivalent equation

{divide by 2 is easiest}

ans: $2x - 3y = 5$

4. Define identity matrix and give an example of the $[2 \times 2]$ and $[3 \times 3]$ identity matrix.

Def: The matrix such that $[A]x[I]$ (the identity matrix) = $[A]$. OR The matrix with 1's in the major diagonal and 0's everywhere else.

Ex: $[2 \times 2]$ identity matrix: $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

$[3 \times 3]$ identity matrix: $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

5. Give the mapping rule for $y = 3\sin 2(x+30) - 40$.

Put in transformational form first: $\frac{1}{3}(y + 40) = \sin 2(x + 30^\circ)$

Thus m.rule is: $(x, y) \rightarrow \left(\frac{1}{2}x - 30^\circ, 3y - 40\right)$

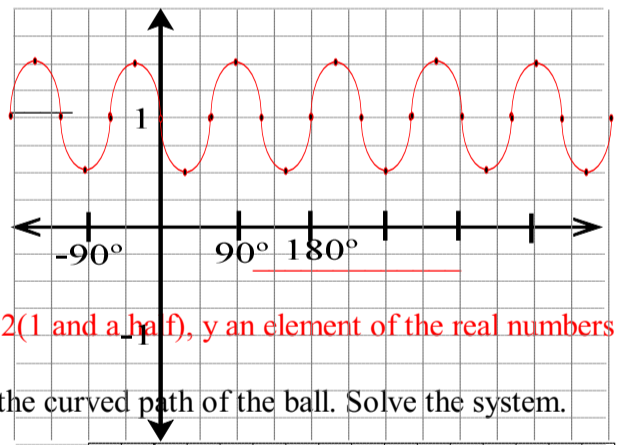
6. The equation $2(y-1) = \sin 3(x-180^\circ)$ is graphed. State the domain(possible x values) and range(possible y values).

Domain: $D = \{x | x \in \mathbb{R}\}$

Read as: x such that x is an element of the real number

Range: $R = \left\{y \mid \frac{1}{2} \leq y \leq \frac{3}{2}, y \in \mathbb{R}\right\}$

read as: y such that one half is less than y is less than 3 over 2 (1 and a half), y an element of the real numbers



7. Use the graph to write a system of equations to describe the curved path of the ball. Solve the system.

Points: $(0, 10)$ $(2, 30)$ and $(4, 15)$

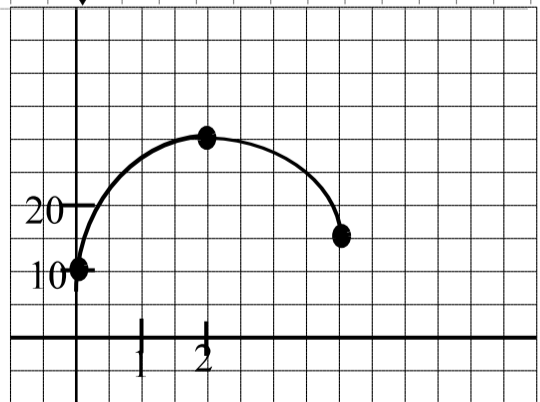
system: (sub each point into $y = ax^2 + bx + c$)

$10 = c$

$30 = 4a + 2b + c$ Solution: $a = -4.375, b = 18.75, c = 10$

$15 = 16a + 4b + c$ or: $a = \frac{-35}{8}, b = \frac{75}{4}, c = 10$

(solve by any method. Solving by substitution may be easiest)



8. Write two equations from the following table. Then solve the system by matrices.

	# Mittens	# Boots	Total Cost(\$)
Men	2	6	64

Let: M=cost of a mitten, B= cost of a boot

$2M + 6B = 64$

$4M + 2B = 28$

(Solve by any method)

$M = \$2.00, B = \10.00