

Math Work Sample

Practice - Algebra

Name MAURER

Date _____

Pat was in a fishing competition at Lake Pisces. She caught some bass and some trout. Each bass weighed 3 pounds, and each trout weighed 1 pound. Pat caught a total of 30 pounds of fish. She got 5 points in the competition for each bass, but since trout are endangered in Lake Pisces, she lost 1 point for each trout. Pat scored a total of 42 points. How many bass and trout did Pat catch during the competition?

$x = \text{bass}, y = \text{trout}$

Task: Find the number of bass & trout Pat caught.

Weight
 $3x + 1y = 30$

Points
 $5x - 1y = 42$

I will use elimination

$$\begin{array}{r} 3x + 1y = 30 \\ + (5x - 1y = 42) \\ \hline \end{array}$$

$$\frac{8x}{8} = \frac{72}{8}$$

$x = 9$

Plug in to find y

$$\begin{array}{r} 3(9) + 1y = 30 \\ 27 + 1y = 30 \\ -27 \quad -27 \\ \hline y = 3 \end{array}$$

$$\begin{array}{r} 5(9) - 1y = 42 \\ 45 - 1y = 42 \\ -43 \quad -43 \\ \hline -1y = -3 \\ \frac{-1y}{-1} = \frac{-3}{-1} \quad y = 3 \end{array}$$

Strand: <u>x</u> algebra _____ geometry _____ statistics	Score:		
Standard(s): HS.A-CED.A (3) Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. HS.A-REI.C (6) Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables.	Making sense of the task	Representing and solving the task	
	Communicating reasoning	Reflecting and evaluating	Accuracy

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Pat caught 9 bass & 3 trout.

Graph

$$3x + 1y = 30$$

$$\begin{array}{l|l} x=0, 1y=30 & y=0, \frac{3x}{3}=\frac{30}{3} \\ y=30 & x=10 \\ (0, 30) & (10, 0) \end{array}$$

$$5x - 1y = 42$$

$$\begin{array}{l|l} x=0, -1y=42 & y=0, \frac{5x}{5}=\frac{42}{5} \\ \frac{-1}{-1} & \frac{5}{5} \\ y=-42 & x=8.4 \\ (0, -42) & (8.4, 0) \end{array}$$

Tables

Weight

x	y
0	30
1	27
2	24
3	21
4	18
5	15
6	12
7	9
8	6
9	3

Points

x	y
0	-42
1	-37
2	-32
3	-27
4	-22
5	-17
6	-12
7	-7
8	-2
9	3

Both tables have (9, 3)

