

UNIT 4: Modeling Real-World Situations with a SYSTEM of Equations in $[AX + BY = C]$ form.

Graphing lines using intercepts

~ Unit 4, Page 28 ~

Your turn:

Equations already written on pages 19-21

1) A test has **multiple choice** questions worth **2 points** apiece and **short answer** questions worth **4 points** apiece. There are a total of **30 questions**. The test is worth a total of **100 points**.

Define your variables: $x = \text{multich}$ $y = \text{shortans.}$

Write a system of equations:

$$\begin{aligned} x + y &= 30 \\ 2x + 4y &= 100 \end{aligned}$$

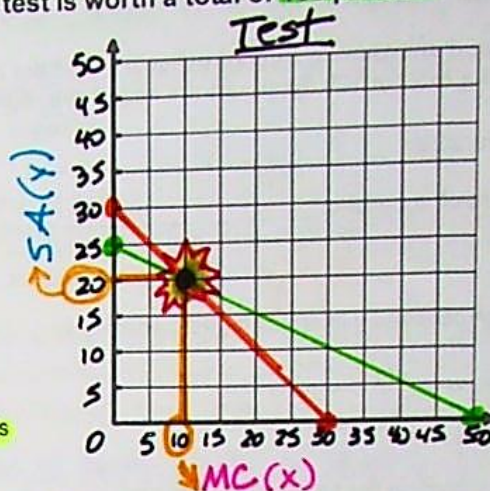
ordered pairs (MC, SA)

Find the x-intercept and y intercept for both equations.

Eq 1: $(0, 30)$ and $(30, 0)$ $x + y = 30$

Eq 2: $(0, 25)$ and $(50, 0)$ $2x + 4y = 100$

Graph your system on the same coordinate grid. (MC Questions, SA Questions) Use an interval of 5 on the x-axis and 5 on the y-axis



State the coordinates of intersection. Explain what these coordinates tell you about the situation.

$(10, 20)$ Ten multiple choice and 20 short answer questions total 30 questions. Ten MC questions of 2pts plus 20 short answer for 4pts equals $10(2) + 20(4) = 20 + 80 = 100$ points

2) Justin has saved **five dollar bills** and **singles**. Justin has a total of **35 bills**. His savings are worth a total of **\$75**.

Define your variables: $x = \text{Fives}$ $y = \text{Singles}$

Write a system of equations:

$$\begin{aligned} x + y &= 35 \\ 5x + 1y &= 75 \end{aligned}$$

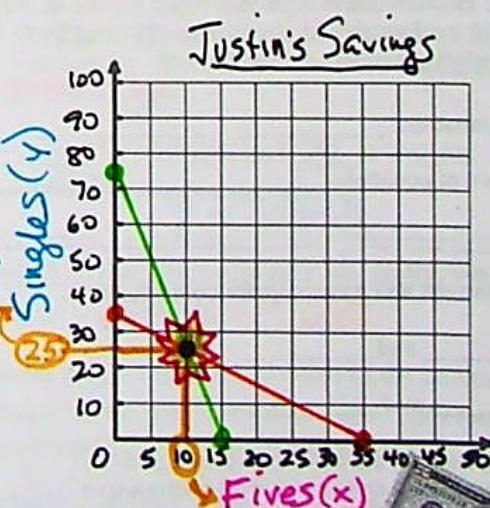
ordered pairs (Fives, Singles)

Find the x-intercept and y intercept for both equations.

Eq 1: $(0, 35)$ and $(35, 0)$ $x + y = 35$

Eq 2: $(0, 75)$ and $(15, 0)$ $5x + y = 75$

Graph your system on the same coordinate grid. (Fives, Singles) Use an interval of 5 on the x-axis and 10 on the y-axis



State the coordinates of intersection. Explain what these coordinates tell you about the situation.

$(10, 25)$ Ten fives plus 25 singles total 35 bills that have a total worth of $10(5) + 25(1) = 50 + 25 = \75

Homework is continued