Wednesday, November 28, 2012

Agenda

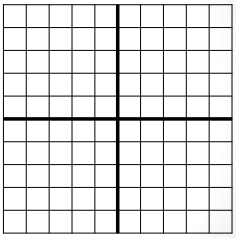
- TISK & 2 MM
- Homework Check
- Conclude Lesson 10-6: Solving Systems
- Homework: p. 526 #33-41 odd

TISK Problems

1) Simplify: $-8x + 17y - (7x - 18y)$
2) Evaluate: $-4(-9 \cdot 5)$
3) *Find the requested information. Write your answer as a complete sentence.*
   Christian earns a 5.5% commission on his weekly sales plus a $150 weekly salary. If his sales totaled $47,000 last week, how much did he earn for the week?

Homework Check

1) (2, -4)
2) (0, 2)
3) (-1, -3)
4) (4, 0)
5) (4, 3)



§10.6 Solving Systems

- Another way to solve a system of equations is by using ***the substitution method***.
- In this method, you follow a few basic steps:
  1) Solve all equations for *y*.
  2) Set the *x* parts of the equations equal.
  3) Solve for *x*.
  4) Plug the *x*-value back in to find *y*.

Example. Solve the system by substitution.

- $y = 3x - 1$
- $2x + y = 14$

Our goal is to find out when these *y*-values are the same. Therefore, set them to be equal.

Step 1. Solve each equation for *y*.

$y = 3x - 1$ ✓

$2x + y = 14$

$-2x \quad -2x$

$y = -2x + 14$ ✓

Step 2. Set the *x* parts equal to each other.

Step 3. Solve for *x*.

$-2x + 14 = 3x - 1$

$+2x \quad +2x$

$14 = 5x - 1$

$+1 \quad +1$

$\frac{15}{5} = \frac{5x}{5}$

$3 = x$

Step 4. Plug in *x* to solve for *y*.

$y = 3x - 1$

$y = 3(3) - 1$

$y = 9 - 1$

$y = 8$

$(3, 8)$

Example. Solve by substitution.

- $2x - 3y = 15$
- $4x + y = 9$

$4x + y = 9$

$-4x \quad -4x$

$y = -4x + 9$

$4(3) + y = 9$

$12 + y = 9$

$-12 \quad -12$

$y = -3$

$(3, -3)$

$2x - 3y = 15$

$+3y \quad +3y$

$2x = 3y + 15$

$-15 \quad -15$

$\frac{2x - 15}{3} = \frac{3y}{3}$

$\frac{2}{3}x - 5 = y$

$\frac{2}{3}x - 5 = -4x + 9$

$+4x \quad +4x$

$\frac{14}{3}x - 5 = 9$

$+5 \quad +5$

$\frac{3}{14} \cdot \frac{14}{3}x = 14 \cdot \frac{3}{14}$

$x = 3$

You Try It.

- Solve by substitution.
- $y = 2x + 5$
- $3y + 9 = 6x - 9$