Solutions

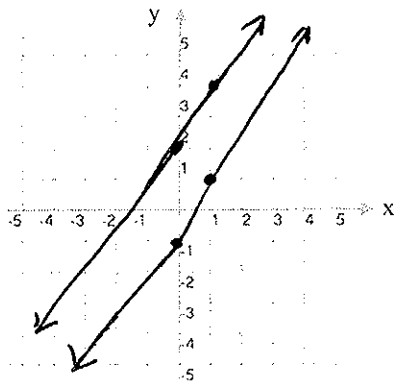
4.1

2. Given the system: i) $2x - y = 1$
   ii) $2x - y = -2$

a. Write each line in slope-intercept form.

i) $y = 2x - 1$

ii) $y = 2x + 2$



b. By comparing the slopes and y-intercepts, determine whether these lines are parallel, coinciding, or if they intersect at one point. parallel — same slope!

c. Graph each line on the same coordinate system.

✓

d. Is there a solution to this system? NO

e. Is this system consistent or inconsistent? inconsistent

Solutions

Section 4.2 Solving Systems of Equations by the Substitution Method

CLASSROOM ACTIVITY 4.2A

1. a. Solve the system by the substitution method: $y = x + 6$
$3x + 2y = 2$

$3x+2(x+6)=2$
$3x+2x+12=2$
$5x=-10$
$x=-2 \rightarrow y=-2+6=4$

b. Check your answer in *both* original equations.

$4=-2+6$ ✓

$3(-2)+2(4)=2$
$-6+8=2$ ✓

2. Given the system: $3x - 2y = -10$
$x + 4y = 6$

a. Of the four variable terms, which variable is the easiest to isolate?

x

b. Solve the system using the substitution method.

$x=6-4y$
$\rightarrow$
$3(6-4y)-2y=-10$
$18-12y-2y=-10 \rightarrow -14y=-28$
$y=\frac{-28}{-14}=2 \rightarrow x=6-4(2)=6-8=-2$

c. Check your answer in both equations.

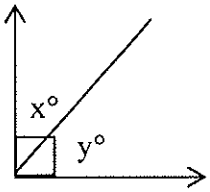
$3(-2)-2(2)=-10$
$-6-4=-10$ ✓

$-2+4(2)=6$
$-2+8=6$
✓

Solutions

CLASSROOM ACTIVITY 4.2C

1. Two angles are complementary. (add up to 90°) One angle is 8° more than the other. What are the measures of the two angles?



$x + y = 90^\circ$
$x = y + 8^\circ$
$\rightarrow y + 8^\circ + y = 90^\circ$
$2y = 82^\circ$
$y = 41^\circ$
$\rightarrow x = 41^\circ + 8^\circ$
$x = 49^\circ$

a. Set up a system of two equations. Let x represent the smaller angle and y represent the larger angle.

equation 1: _____

equation 2: _____

b. Solve the system of equations by using the substitution method.

c. Interpret your answer.