Algebra 1 6.4

Solve systems by elimination

Solve problems using elimination

solve

elimination

DRT charts

whiteboards

speed dating (if time)

zero pairs

x or y

$2x - y = 4$ $\times 3$ → $6x - 3y = 12$

$7x + 3y = 27$ → $7x + 3y = 27$

What is the plan?

$13x = 39$

$\frac{13x}{13} = \frac{39}{13}$

$x = 3$

$2 \cdot 3 - y = 4$

$6 - y = 4$

$-6 \quad -6$

$-y = -2$

$\frac{-y}{-1} = \frac{-2}{-1}$

$y = 2$

$7 \cdot 3 + 3 \cdot 2 = 27$

$21 + 6 = 27$ ✓

(x, y)

$(3, 2)$

2. $2x + 7y = 1$
$x + 5y = 2$ $\Rightarrow$

$2x + 7y = 1$
$-2x + -10y = -4$
$-3y = -3$
$\frac{-3y}{-3} = \frac{-3}{-3}$
$y = 1$

$(-3, 1)$

$2x + 7 \cdot 1 = 1$
$2x + 7 = 1$
$-7 \quad -7$
$2x = -6$
$\frac{2x}{2} = \frac{-6}{2}$
$x = -3$

$-3 + 5 \cdot 1 = 2$
$-3 + 5 = 2$
$=$

3 $4x + 2y = -14$ $\xrightarrow{-3}$ $-12x + -6y = 42$

$5x + 3y = -17$ $\xrightarrow{2}$ $10x + 6y = -34$

$(-4, 1)$

$-2x = 8$

$\frac{-2x}{-2} = \frac{8}{-2}$

$x = -4$

$4 \cdot -4 + 2y = -14$

$-16 + 2y = -14$

$+16 \quad +16$

$2y = 2$

$\frac{2y}{2} = \frac{2}{2}$

$5 \cdot -4 + 3 \cdot 1 = -17$

$-20 + 3 = -17$!!

4. $9a + 2b = -8$ $\xrightarrow{3}$ $27a + -6b = -24$ (a, b)

$-7a + 3b = 12$ $\xrightarrow{2}$ $-14a + 6b = 24$

$13a = 0$

$\frac{13a}{13} = \frac{0}{13}$ $(0, 4)$

$a = 0$

$9 \cdot 0 + -2b = -8$

$0 + -2b = -8$

$\frac{-2b}{-2} = \frac{-8}{-2}$

$b = 4$

$-7 \cdot 0 + 3 \cdot 4 = 12$

$0 + 12 = 12$

☺

$$5x - 3y = 6 \xrightarrow{5} 25x - 15y = 30$$
$$2x + 5y = -10 \xrightarrow{3} 6x + 15y = -30$$

$$\frac{31x}{31} = \frac{0}{31}$$

$x = 0$

$5 \cdot 0 + -3y = 6$

$0 + -3y = 6$

$\frac{-3y}{-3} = \frac{6}{-3}$

$y = -2$

$2 \cdot 0 + 5 \cdot -2 = -10$

$0 + -10 = -10$

$(0, -2)$

$7 \cdot 3 + 3 \cdot 2 = 27$

$21 + 6 = 27$ ☺

$2x - y = 4 \xrightarrow{3} 6x - 3y = 12$

$7x + 3y = 27 \rightarrow 7x + 3y = 27$

$$\frac{13x}{13} = \frac{39}{13}$$

$x = 3$

$2 \cdot 3 - y = 4$

$6 - y = 4$

$-6 \quad -6$

$-y = -2$

$\frac{-y}{-1} = \frac{-2}{-1}$

$(3, 2)$

$$7x + 3y = -1$$
$$x + y = -3 \xrightarrow{-3} -3x + -3y = 9$$

$$7x + 3y = -1$$
$$\underline{\qquad\qquad\qquad}$$
$$4x = 8$$
$$\frac{4x}{4} = \frac{8}{4}$$
$$x = 2$$

$$7 \cdot 2 + 3y = -1$$
$$14 + 3y = -1$$
$$-14 \quad -14$$
$$\underline{\qquad\qquad}$$
$$3y = -15$$
$$\frac{3y}{3} = \frac{-15}{3}$$
$$y = -5$$

D = R * T
wind
current
upstream
downstream

5. CCSS **SENSE-MAKING** A kayaking group with a guide travels 16 miles downstream, stops for a meal, and then travels 16 miles upstream. The speed of the current remains constant throughout the trip. Find the speed of the kayak in still water.