Warmup

1) Solve and Graph (# line)

$4x - 3(x+4) \geq 2x + 6$

$4x - 3x - 12 \geq 2x + 6$

$x - 12 \geq 2x + 6$

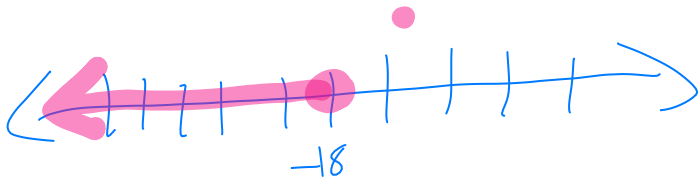
$-x \qquad\qquad -x$

$-12 \geq x + 6$

$-6 \qquad\quad -6$

$-18 \geq x$

$x \leq -18$



2) Graph & shade

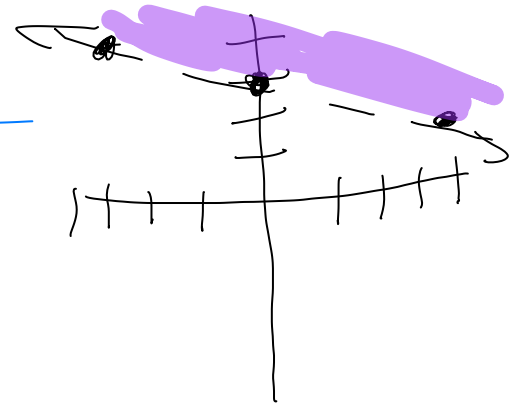
$x + 4y > 12$

$-x \qquad\quad -x$

$4y > -x + 12$

$\frac{4y}{4} > \frac{-x}{4} + \frac{12}{4}$

$y > -\frac{1}{4}x + 3$



4.5 May I Have More, Please?

A Solidify Understanding Task

Elvira, the cafeteria manager, has to be careful with her spending and manages the cafeteria so that they can serve the best food at the lowest cost. To do this, Elvira keeps good records and analyzes all of her budgets.

1. Elvira's cafeteria has those cute little cartons of milk that are typical of school lunch. The milk supplier charges $0.35 per carton of milk, in addition to a delivery charge of $75. What is the maximum number of milk cartons that Elvira can buy if she has budgeted $500 for milk?

   a. Write and solve an inequality that models this situation. $0.35x + 75 \leq 500$

   $x \leq 1214$

b. Describe in words the quantities that would work in this situation	c. Write your answer in both interval and inequality notation
0.35 → $/carton 500 → Budget x → # cartons 75 → deliv charge	[0, 1214] $0 \leq x \leq 1214$

2. Students love to put ranch dressing on everything, so Elvira needs to keep plenty in stock. The students eat about 2.25 gallons of ranch each day! Elvira started the school year with 130 gallon of ranch dressing. She needs to have at least 20 gallons left when she reorders to have enough in stock until the new order comes. For how many days will her ranch dressing supply last before she needs to reorder?

   a. Write and solve an inequality that models this situation.

$130 - 2.25x \geq 20$
$-130 \quad -130$
$\frac{-2.25x}{-2.25} \geq \frac{-110}{-2.25}$

$x \leq 49$

b. Describe in words the quantities that would work in this situation.	c. Write your answer in both interval and inequality notation.
130 → start Ranch gals 2.25 → # gals consumed x → days 20 → Min gals left	[0, 49] $0 \leq x \leq 49$

3. The prices on many of the cafeteria foods change during the year. Elvira finds that she has ordered veggie burgers four times and paid $78, $72, $87, and $90 on the orders. To stay within her budget, Elvira needs to be sure that the average order of veggie burgers is not more than $82. How much can she spend on the fifth order to keep the average order within her budget?

   a. Write and solve an inequality that models this situation.

$\frac{327 + x}{5} \leq 82$

$x \leq 83$

b. Describe in words the quantities that would work in this situation.	c. Write your answer in both interval and inequality notation.
327 → 4 orders 5 → 5 orders x → 5th order 82 → max budget	[0, 83] $0 \leq x \leq 83$

4. Elvira can purchase ready-made pizzas for $14.50 each. If she makes them in the cafeteria, she can spend $44.20 on ingredients and $6.25 per pizza on labor. For how many pizzas is it cheaper for the cafeteria to make the pizzas themselves rather than buy them ready-made?

   a. Write and solve an inequality that models this situation. $44.20 + 6.25x < 14.50x$; $-6.25x \quad -6.25x$; $44.20 < 8.25x$; $\frac{44.20}{8.25} < \frac{8.25x}{8.25}$; $5.35 < x$; $x > 5.35$; $x \geq 6$

b. Describe in words the quantities that would work in this situation.	c. Write your answer in both interval and inequality notation.
44.20 → Ingrd $ 6.25 → Labor/cake x → pizzas 14.50 → Ready made pizza	[6, ∞) $6 \leq x < \infty$

5. Elvira is comparing prices between two different suppliers of fresh lettuce. Val's Veggies charges $250 for delivery plus $1.50 per bag of lettuce. Sally's Salads charges $100 for delivery plus $4.00 per bag of lettuce. How many bags of lettuce must be purchased for Val's Veggies to be the cheaper option?

   a. Write and solve an inequality that models this situation. $250 + 1.5x < 100 + 4x$; $-4x \quad -4x$; $250 - 2.5x < 100$; $-250 \quad -250$; $\frac{-2.5x}{-2.5} < \frac{-150}{-2.5}$; $x > 60$

b. Describe in words the quantities that would work in this situation.	c. Write your answer in both interval and inequality notation.
250 → Vals deliv $ 1.5 → $ bag lettuce 100 → SS deliv $ 4 → $ bag lettuce x = # bags salad	(60, ∞) $60 < x < \infty$

6. Each student that buys school lunch pays $2.75. The cafeteria typically brings in between $1168.75 and $1438.25. How many students does the cafeteria usually serve?

   a. Model this situation using an inequality. $\frac{1168.75}{2.75} \leq \frac{2.75x}{2.75} \leq \frac{1438.25}{2.75}$

b. Describe in words the quantities that would work in this situation.	c. Write your answer in both interval and inequality notation.
1168.75 → low $ made 2.75 → cost per lunch x → students 1438.25 → high $ made	$425 \leq x \leq 523$ [425, 523]