## Warmup $10 /\left(1 \div \frac{1}{25}\right)$

1) The graphs below show the distance two cars have traveled along the freeway over a period of several seconds. Car A is traveling 30 meters per second.

Which equation from those shown below is the best choice for describing the distance traveled by car B after $x$ seconds? Explain.
a. $y=85 x$
b. $y=60 x$
c. $y=30 x$
d. $y=15 x$

## $D$ ( $B$ is less steep than $A$, so the slope must be less than 30)



Time (in seconds)

## Turn in your benchmark!!!

- (unless you already did)


## Today:

- More story problems in groups OF THREE.
- This time, they will be posted around the room. You and your group will be able to do them in any order, at your own pace.
- Use your own paper. Organize your work and label each problem. Each person must show all work. Circle your answers.
- HELP EVERYONE IN YOUR GROUP UNDERSTAND!!!
- Early finishers: work on/compare answers on the homework.


Jana wrote the ordered pairs $(2,2),(4,3)$, and $(10,6)$. These ordered pairs satisfy a linear function.

Which ordered pair satisfies the same linear function?
A) $(12,8)$
B) $(14,7)$
C) $(20,11)$

Show your process. There are MANY possible ways to solve it!
D) $(24,16)$

## A giant icicle has formed on the roof of the Lischwe house. The icicle is originally 3 feet long. However, the temperature is warming up, and it melts 3 inches every week.

a) Write an equation to model the length of the icicle.
b) Create an $x / y$ table.
c) If you graphed the values in the table, would you connect the dots? Why/why not?
d) The inputs represent:
e) The outputs represent:
f) The slope is ___ and it represents:
g) The $y$-intercept is __ and it represents:


Rick will participate in a walk-a-thon to raise money for charity. The amount he will raise based on the number of miles he walks is shown in the table, which represents a linear function.
Which of the statements is correct? Select ALL that apply.

| Miles <br> Walked | Amount <br> Raised (\$) |
| :---: | :---: |
| 2 | 220 |
| 5 | 460 |
| 8 | 700 |
| 11 | 940 |

A If Rick walks 0 miles, he will raise $\$ 0$.
B If Rick walks 0 miles, he will raise $\$ 60$.
C If Rick walks 0 miles, he will raise $\$ 80$.
D For each mile that Rick walks, he will raise an additional $\$ 60$.
E For each mile that Rick walks, he will raise an additional $\$ 80$.
F For each mile that Rick walks, he will raise an additional $\$ 110$.


Car A: $d=60 h+20$

Car B: | $\boldsymbol{h}$ | $\boldsymbol{d}$ |
| :---: | :---: |
|  | 0 |
|  | 60 |
| 2 | 160 |
| 4 | 260 |

Two cars are traveling along the same highway, each at a constant rate. For both cars, " $h$ " represents the number of hours spent driving, and "d" represents the distance, in miles, from San Francisco. Select all statements that are true.

A Car A is traveling at the same rate, in miles per hour, as Car B.
B Car A is traveling at a faster rate, in miles per hour, than Car B.
C Car A is traveling at a slower rate, in miles per hour, than Car B.
D Car A is originally closer to San Francisco than Car B.
E Car A is originally at the same distance from San Francisco as Car B.
F Car A and Car B are at the same distance away from San Francisco after 4 hours.

## Bill \& Will's Candy

- Bill had a giant bag of Skittles, and Will had a giant bag of M\&Ms. Both feeling generous, they started giving out candy. After giving skittles to 10 people, Bill had 220 skittles left. After giving skittles to 15 people, Bill had 180 skittles left. Will gave out 12 M\&Ms to each person, and after giving M\&Ms to 20 people, he had 174 M\&Ms left. Assume they each were giving out candy at a constant rate. (same \# of pieces per person)
- A) Whose bag started with more candy? How many more pieces did that bag have?
- B) Who can give candy to more people before they run out? How many people can this person give candy to?

Strategy 1: Use a graph (probably won't be precise enough unless you have graph paper!)

Jana wrote the ordered pairs $(2,2),(4,3)$, and $(10,6)$. These ordered pairs satisfy a linear function.
Which ordered pair satisfies the same linear function?
A) $(12,8)$
B) $(14,7)$
C) $(20,11)$
D) $(24,16)$


## Strategy 2: Use a table

Jana wrote the ordered pairs $(2,2),(4,3)$, and $(10,6)$. These ordered pairs satisfy a linear function.

Which ordered pair satisfies the same linear function?


| $X$ | $Y$ |
| :--- | :--- |
| 2 | 2 |
| 4 | 3 |
| 6 | 4 |
| 8 | 5 |
| 10 | 6 |
| 12 | 7 |
| 14 | 8 |
| 16 | 9 |
| 18 | 10 |
| 20 | 11 |

Linear $=$ Constant Rate of Change for X AND Y

Every time $x$ increases by 2, y increases by 1

## Strategy 3: Figure out the EQUATION

Jana wrote the ordered pairs $(2,2),(4,3)$, and $(10,6)$. These ordered pairs satisfy a linear function.

Which ordered pair satisfies the same linear function?
A) $(12,8)$
B) $(14,7)$
C) $(20,11)$
D) $(24,16)$

| 0 | 1 |  |
| :--- | :---: | :---: |
| $\mathbf{X}$ | $Y$ | Slope $=\frac{\text { change in } y}{\text { change } \text { in } x}$ |
| 2 | 2 | $=\frac{1}{2}$ |
| 4 | 3 |  |
| 6 | 4 | EQUATION: |
| 8 | 5 | $y=\frac{1}{2} x+1$ |
| 10 | 6 |  |

Now test the rule out for each choice! It only works for C. $\frac{1}{2}(20)+1=11$.

## Strategy 4: Use the slope formula

Jana wrote the ordered pairs $(2,2),(4,3)$, and $(10,6)$. These ordered pairs satisfy a linear function.

Which ordered pair satisfies the same linear function?
A) $(12,8)$
B) $(14,7)$
C) $(20,11)$ Slope $=\frac{y_{2}-y_{1}}{x_{2}-x_{1}}$
D) $(24,16)$

$$
\begin{array}{r}
=\frac{3-2}{4-2} \\
=\frac{1}{2}
\end{array}
$$

Then test each choice. It doesn't matter which original point you pick!

$$
A: \frac{8-2}{12-2}=\frac{6}{10}
$$

$$
C: \frac{11-2}{20-2}=\frac{9}{18}=\frac{1}{2}
$$

A giant icicle has formed on the roof of the Lischwe house. The icicle is originally 3 feet long. However, the temperature is warming up, and it melts 3 inches every

## week.

a) Write an equation to model the length of the icicle.
b) Create an $\mathrm{x} / \mathrm{y}$ table.
c) If you graphed the values in the table, would you connect the dots? Why/why not?
d) The inputs represent:
e) The outputs represent:
f) The slope is __ and it represents:
g) The $y$-intercept is __ and it represents:
a) $\mathbf{y}=36-3 x$ (inches) or
$\mathrm{y}=3-\frac{1}{4} x$ (feet)
 make sense; the icicle melts gradually
d) \# of weeks
e) Length of the icicle
f) -3 or $-1 / 4$, amount melted per week
g) 36 or 3, original length of icicle

Rick will participate in a walk-a-thon to raise money for charity. The amount he will raise based on the number of miles he walks is shown in the table, which represents a linear function.
Which of the statements is correct? Select ALL that apply.

| Miles <br> Walked | Amount <br> Raised (\$) |
| :---: | :---: |
| 2 | 220 |
| 5 | 460 |
| 8 | 700 |
| 11 | 940 |

- \$ per hour:
- \$240 every 3 hours
- \$80 per hour
- 2 miles is $\$ 160$
- He must have

B If Rick walks 0 miles, he will raise $\$ 60$.
C If Rick walks 0 miles, he will raise $\$ 80$.
D For each mile that Rick walks, he will raise an additional $\$ 60$.
E For each mile that Rick walks, he will raise an additional $\$ 80$.
F For each mile that Rick walks, he will raise an additional $\$ 110$.

Two cars are traveling along the same highway, each at a constant rate. For both cars, " $h$ " represents the number of hours spent driving, and "d" represents the distance, in miles, from San Francisco.

Select all the statements that are true. Pick up to 6 answers.

Car A: d = 60h + 20

Car B: | $\boldsymbol{h}$ | $\boldsymbol{d}$ |
| :---: | :---: |
| 0 | 60 |
| 2 | 160 |
| 4 | 260 |

Hide A Car A is traveling at the same rate, in miles per hour, as Car B.
B Car A is traveling at a faster rate, in miles per hour, than Car B.
C Car A is traveling at a slower rate, in miles per hour, than Car B.

Hide

Hide
。 Car A is originally closer to San Francisco than Car B.

Hide F Car A and Car B are at the same distance away from San Francisco after 4 hours.

Car A: d = 60h + 20

Car B: | $\boldsymbol{h}$ | $\boldsymbol{d}$ |
| :---: | :---: |
| 0 | 60 |
| 2 | 160 |
| 4 | 260 |

Select all the statements that are true. Pick up to 6 answers.

## Car A:

60 miles per hour, originally 20 miles away

## Car B:

100 miles every 2 hours 50 miles per hour originally 60 miles away

Hide A Car A is traveling at the same rate, in miles per hour, as Car B.
Hide B Car A is traveling at a faster rate, in miles per hour, than Car B.
Hide C Car A is traveling at a slower rate, in miles per hour, than Car B.
Hide D Car A is originally closer to San Francisco than Car B.
Hide E Car A is originally at the same distance from San Francisco as Car B.
Hide F Car A and Car B are at the same distance away from San Francisco after 4 hours.

## Bill \& Will's Candy

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- A) Whose bag started with more candy? How many more pieces did that bag have?
- B) Who can give candy to more people before they run out? How many people can this person give candy to?


## Bill \& Will's Candy

- A) Whose bag started with more candy? How many more pieces did that bag have? Will, 114 more pieces

| - People | Bill's <br> Skittles Left |
| :--- | :--- |
| 10 | 220 |
| 15 | 180 |

40 Skittles for 5 people
8 Skittles per person
10 people would get 80 Skittles

## Will

12 M\&M's per person
174 left after 20 people
12 M\&M's per person, so 20 people would get 240 M\&M's.

Will started with $174+240=$ 414 M\&M's.

Bill started with $220+80=300$ people

## Bill \& Will's Candy

- B) Who can give candy to more people before they run out? How many people can this person give candy to? Bill!

| - People | Bill's <br> Skittles Left |
| :--- | :--- |
| 10 | 220 |
| 15 | 180 |

Will<br>12 M\&M's per person<br>174 left after 20 people

Bill can give out candy to
$300 \div 8=37.5$ people

Will can give out candy to
$414 \div 12=34.5$ people

## Story Problem Worksheet due Monday!!!

