Notes about Slopes

Name: _____
period: ____

Slope = ____ = _____

Identify each line with a positive slope.

Identify each line with a negative slope.

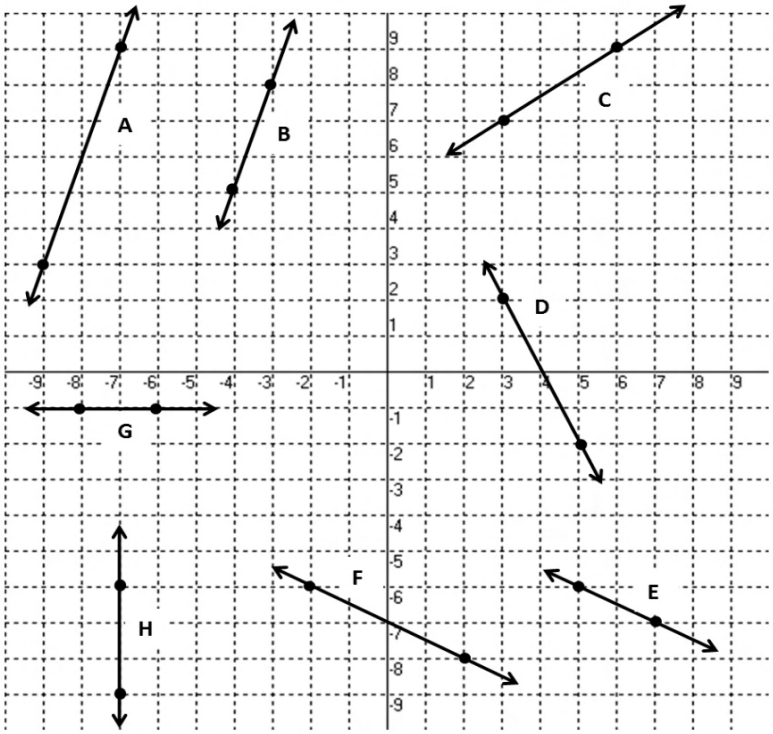
Determine the slope of each line.

A ____ ***E*** ____

B ____ ***F*** ____

C ____ ***G*** ____

D ____ ***H*** ____



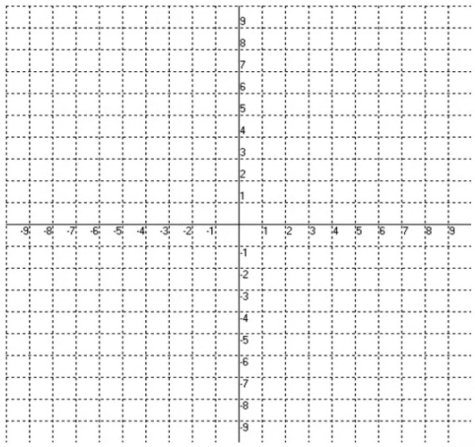
Identify the lines with the same slope.

Which line is steeper?
(circle each correct answer)

B or C ***D or E***

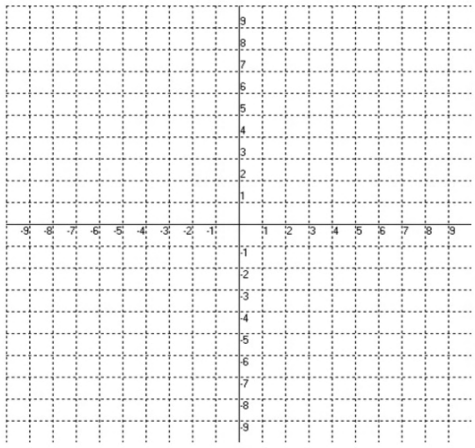
Determine the slope of the line that passes through each pair of points

1. **(3, 3) and (4, 5)**



Slope =

2. **(-3, 5) and (1, 2)**



Slope =

Rate of Change = Slope

Determine the units for each rate of change.

Example:

Speed: $\frac{\text{miles}}{\text{hour}}$

Gasoline usage in a car: $\frac{\textit{miles}}{\textit{gallon}}$

Electricity usage: $\frac{\textit{watts}}{\textit{hour}}$

Commision at a job: $\frac{\quad}{\quad}$

Arcade Game: $\frac{\quad}{\quad}$

Treadmill: $\frac{\quad}{\quad}$

Heart rate: $\frac{\quad}{\quad}$

Glucose level in blood: $\frac{\quad}{\quad}$

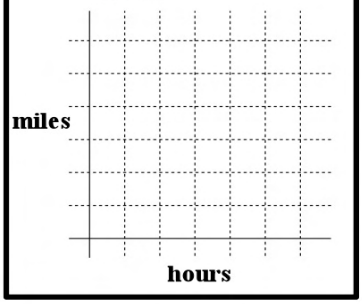
Car engine: $\frac{\quad}{\quad}$

Slope = Rate of Change

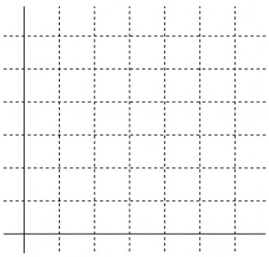
Determine the units for each rate of change.

Example:

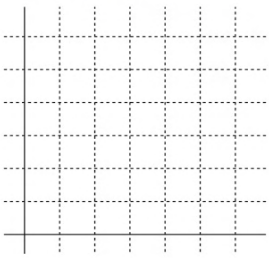
Speed: $\frac{\text{miles}}{\text{hour}}$



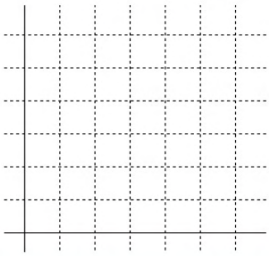
Gasoline usage in a car: $\frac{\quad}{\quad}$



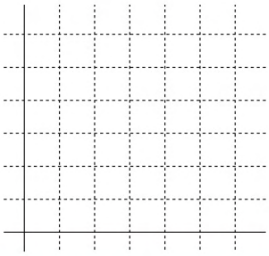
Electricity usage: $\frac{\quad}{\quad}$



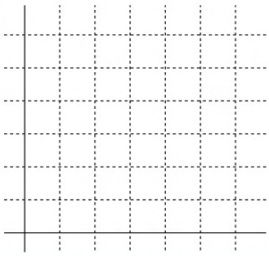
_____: $\frac{\quad}{\quad}$



_____: $\frac{\quad}{\quad}$



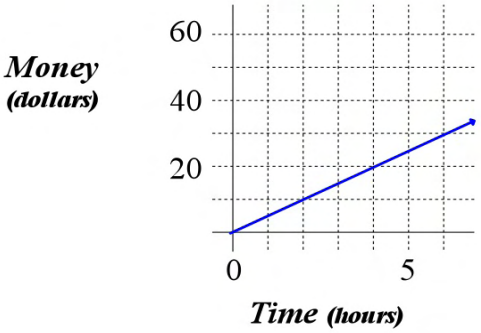
_____: $\frac{\quad}{\quad}$



What does the slope of each line represent?

- determine the slope of each line using units,
- state if the rate of change is *an increase* OR *a decrease*?

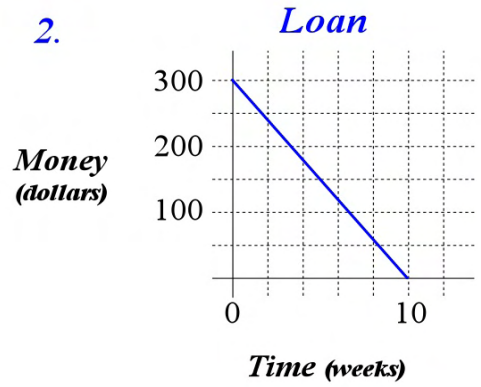
1. ***Wages***



Slope = _____

Amount earned is _____ *by* _____ _____ *per* _____

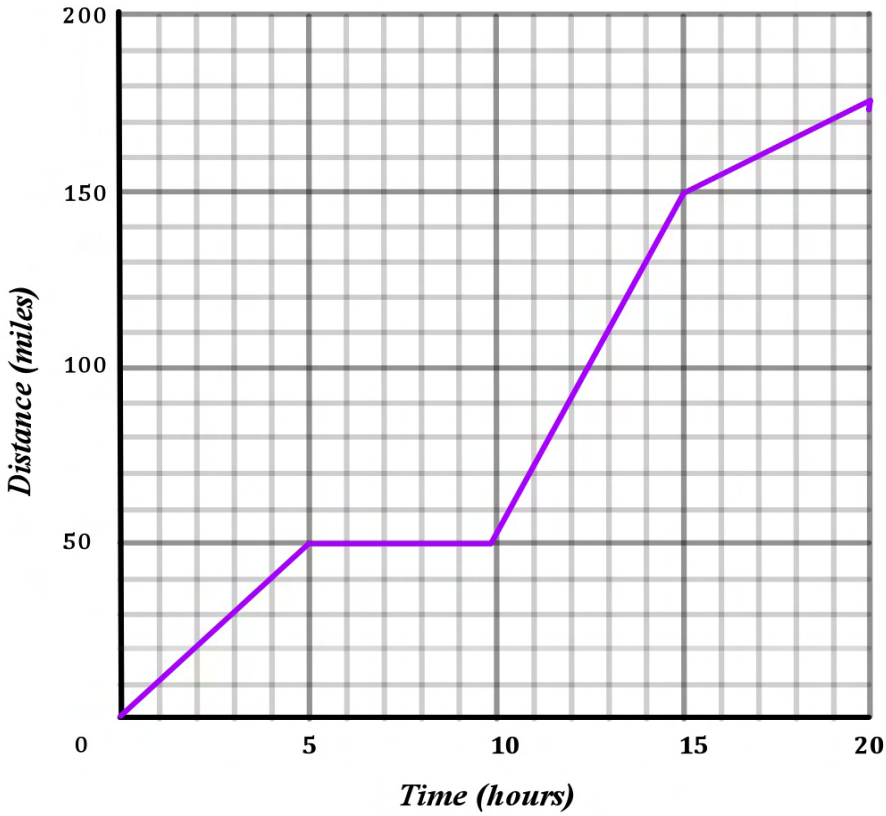
2. ***Loan***



Slope = _____ =

Amount owed is _____ *by* _____ _____ *per* _____

Traveling in a car



Determine the rate of change

between hours 0 to 5

$$\frac{\text{miles}}{\text{hour}}$$

between hours 5 to 10

_____

between hours 10 to 15

_____

between hours 15 to 20

_____

Answers

Notes about Slopes

Name: _____
period: ____

$Slope = \frac{Rise}{Run} = \frac{\text{vertical distance}}{\text{horizontal distance}}$

Identify each line with a positive slope.

A, B, C

Identify each line with a negative slope.

D, E, F

Determine the slope of each line.

A $\frac{6}{2} = 3$

B $\frac{3}{1} = 3$

C $\frac{2}{3}$

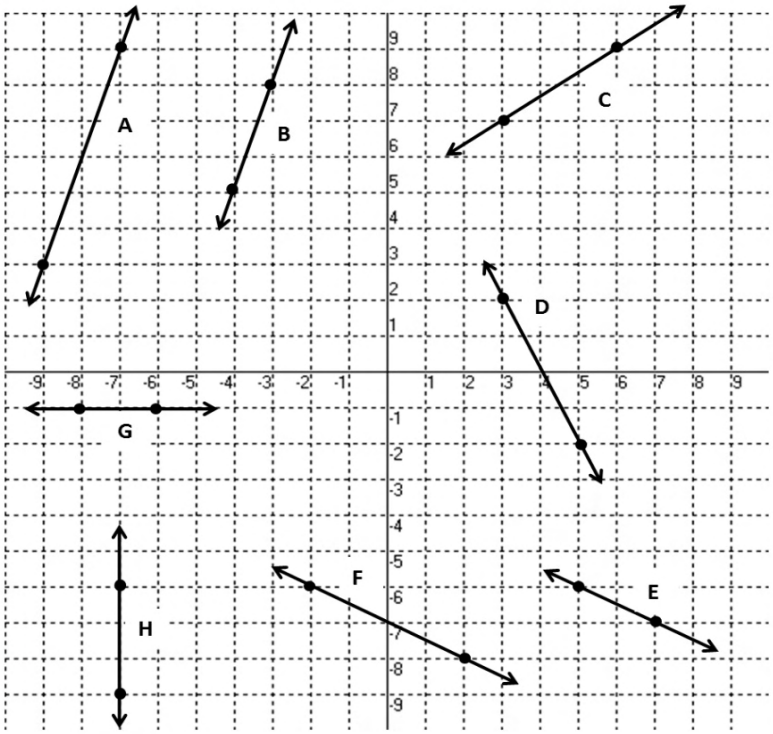
D $\frac{-4}{2} = -2$

E $\frac{-1}{2}$

F $\frac{-2}{4} = \frac{-1}{2}$

G $\frac{0}{2} = 0$

H $\frac{3}{0} = \text{undefined}$



Identify the lines with the same slope.

A and B *E and F*

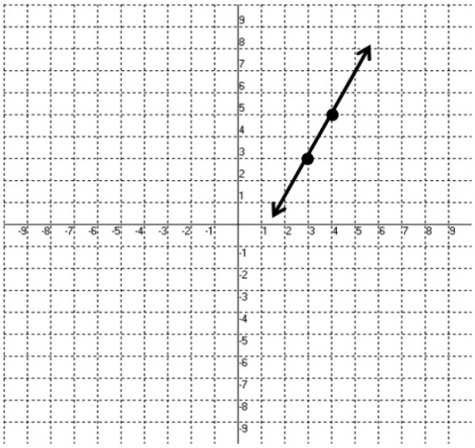
Which line is steeper?
(circle each correct answer)

(*B*) *or C* (*D*) *or E*

Determine the slope of the line that passes through each pair of points

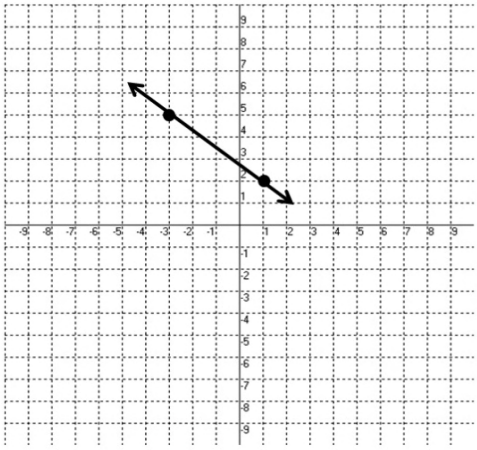
Answers

1. **(3, 3) and (4, 5)**



Slope $= \frac{1}{2}$

2. **(-3, 5) and (1, 2)**



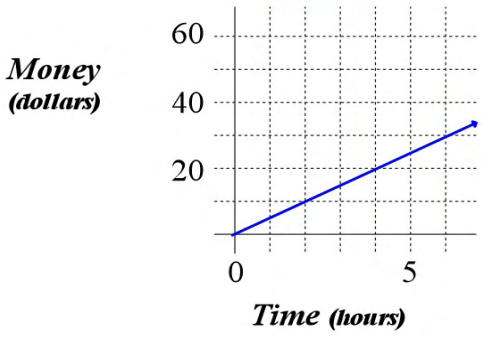
Slope $= \frac{-3}{4}$

What does the slope of each line represent?

- determine the slope of each line using units,
- state if the rate of change is *an increase* OR *a decrease*?

Answers

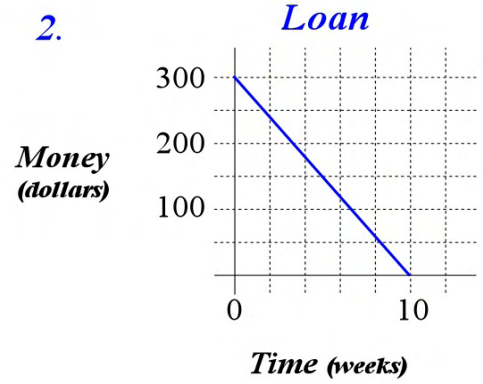
1. *Wages*



$$Slope = \frac{20 \text{ dollars}}{4 \text{ hours}} = 5 \text{ dollars per hour}$$

Amount earned is ***an increase*** *by* ***5 dollars*** *per* ***hour***

2. *Loan*

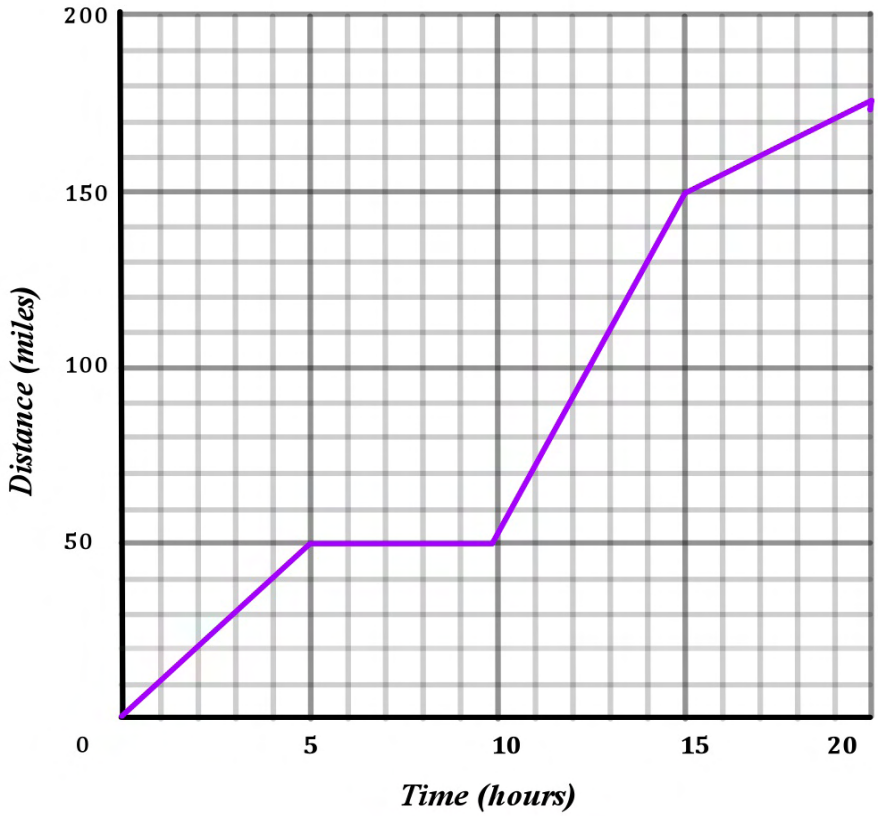


$$Slope = \frac{300 \text{ dollars}}{10 \text{ weeks}} = 30 \text{ dollars per week}$$

Amount owed is ***a decrease*** *by* ***30 dollars*** *per* ***week***

Traveling in a car

Answers



Determine the rate of change

between hours 0 to 5

$\frac{50 \text{ miles}}{5 \text{ hours}}$ **= 10 miles per hour**

between hours 5 to 10

$\frac{0 \text{ miles}}{5 \text{ hours}}$ **= 0 miles per hour**

between hours 10 to 15

$\frac{100 \text{ miles}}{5 \text{ hours}}$ **= 20 miles per hour**

between hours 15 to 20

$\frac{25 \text{ miles}}{5 \text{ hours}}$ **= 5 miles per hour**

Rate of Change = Slope

Possible answers

Determine the units for each rate of change.

Example:

Speed:

$$\frac{\text{miles}}{\text{hour}}$$

Gasoline usage in a car:

$$\frac{\textit{miles}}{\textit{gallon}}$$

Electricity usage:

$$\frac{\textit{watts}}{\textit{hour}}$$

Commision at a job:

$$\frac{\textit{dollars}}{\textit{item}}$$

Arcade Game:

$$\frac{\textit{quarters}}{\textit{hour}}$$

Treadmill:

$$\frac{\textit{strides}}{\textit{minute}}$$

Heart rate:

$$\frac{\textit{heartbeats}}{\textit{minute}}$$

Glucose level in blood:

$$\frac{\textit{mg}}{\textit{dl}}$$ *milligrams* / *deciliter*

Car engine:

$$\frac{\textit{revolutions}}{\textit{second}}$$

Slope = Rate of Change

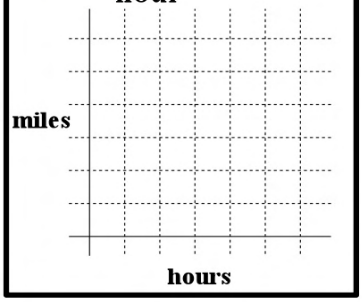
Determine the units for each rate of change.

Possible answers

Example:

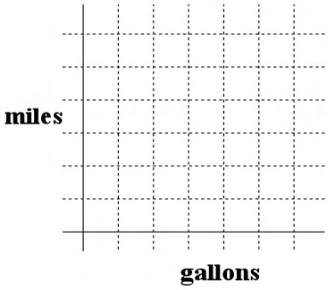
Speed:

$$\frac{\text{miles}}{\text{hour}}$$



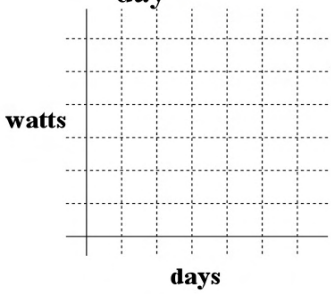
Gasoline usage in a car:

$$\frac{\text{miles}}{\text{gallon}}$$



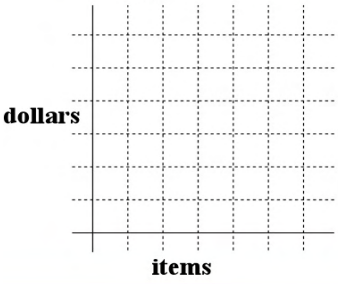
Electricity usage:

$$\frac{\text{watts}}{\text{day}}$$



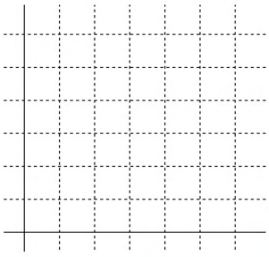
Commission at a job:

$$\frac{\text{dollars}}{\text{item}}$$



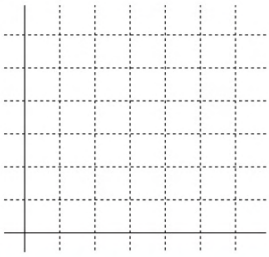
_____:

$$\frac{\quad}{\quad}$$



_____:

$$\frac{\quad}{\quad}$$



Assignment on Slopes

Name: _____
period: ____

Identify each line with a positive slope.

Identify each line with a negative slope.

Determine the slope of each line.

A ____ ***F*** ____

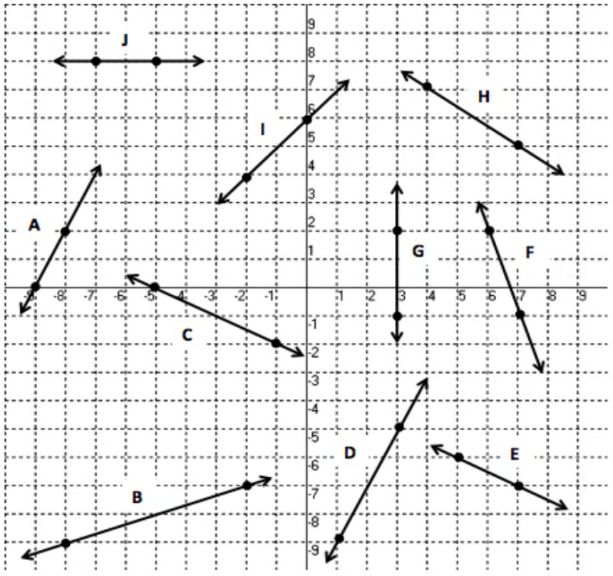
B ____ ***G*** ____

C ____ ***H*** ____

D ____ ***I*** ____

E ____ ***J*** ____

Identify the lines with the same slope.



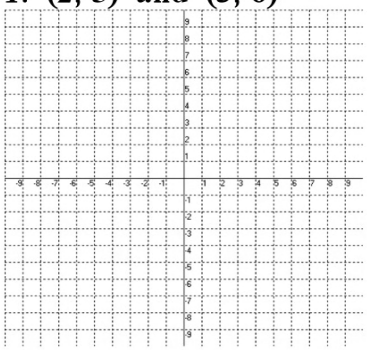
Which line is steeper?
(circle each correct answer)

A or I

F or H

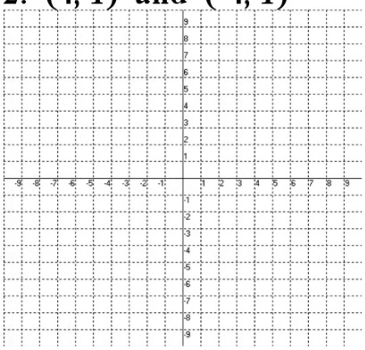
Determine the slope of the line that passes through each pair of points

1. (2, 5) and (3, 6)



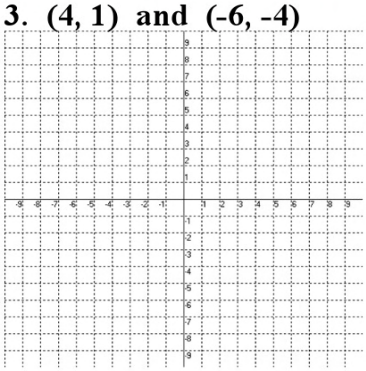
Slope =

2. (4, 1) and (-4, 1)



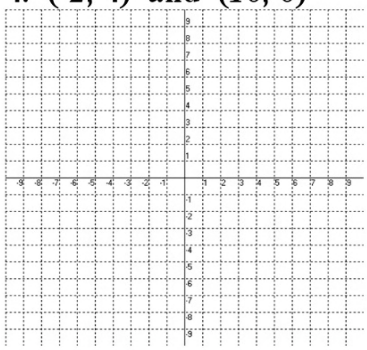
Slope =

3. (4, 1) and (-6, -4)



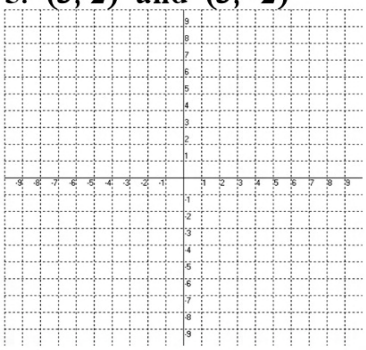
Slope =

4. (-2, 4) and (10, 0)



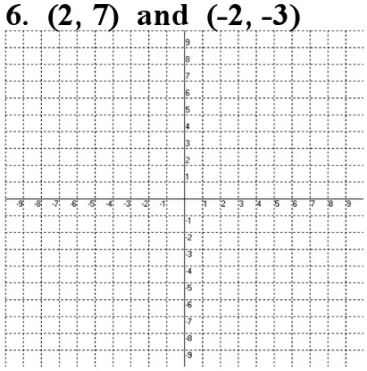
Slope =

5. (3, 2) and (3, -2)



Slope =

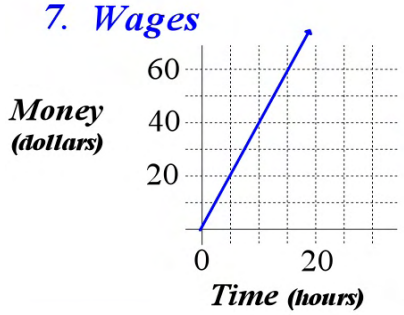
6. (2, 7) and (-2, -3)



Slope =

What does the slope of each line represent?

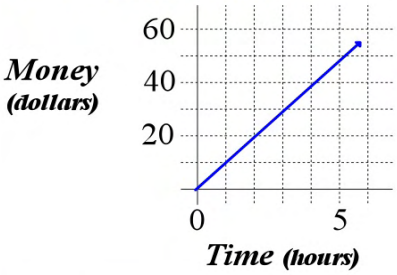
7. Wages



Slope = _____

Amount earned is _____ of ___ _____ per _____

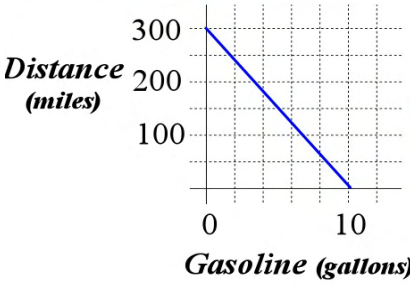
8. Arcade Game



Slope = _____

Amount of profit is _____ of ___ _____ per _____

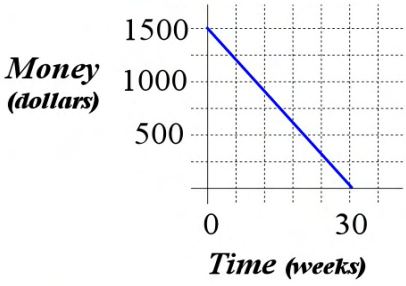
9. Gasoline usage



Slope = _____

Amount of gas is _____ of ___ _____ per _____

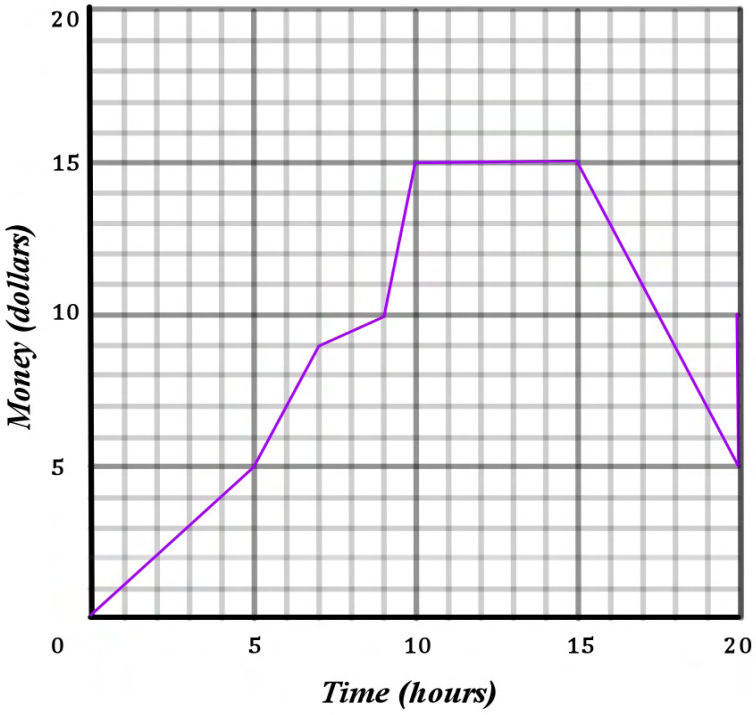
10. Loan



Slope = _____

Amount of debit owed is _____ of ___ _____ per _____

Profits at Hamburger Heaven



Determine the rate of change

between hours 0 to 5

$\frac{\text{dollars}}{\text{hours}}$ = ***increase of*** ___ ***per*** _____

between hours 5 to 7

_____ = _____ ***of*** ___ ***per*** ____

between hours 7 to 9

_____ = _____ ***of*** ___ ***per*** ____

between hours 9 to 10

_____ = _____ ***of*** ___ ***per*** ____

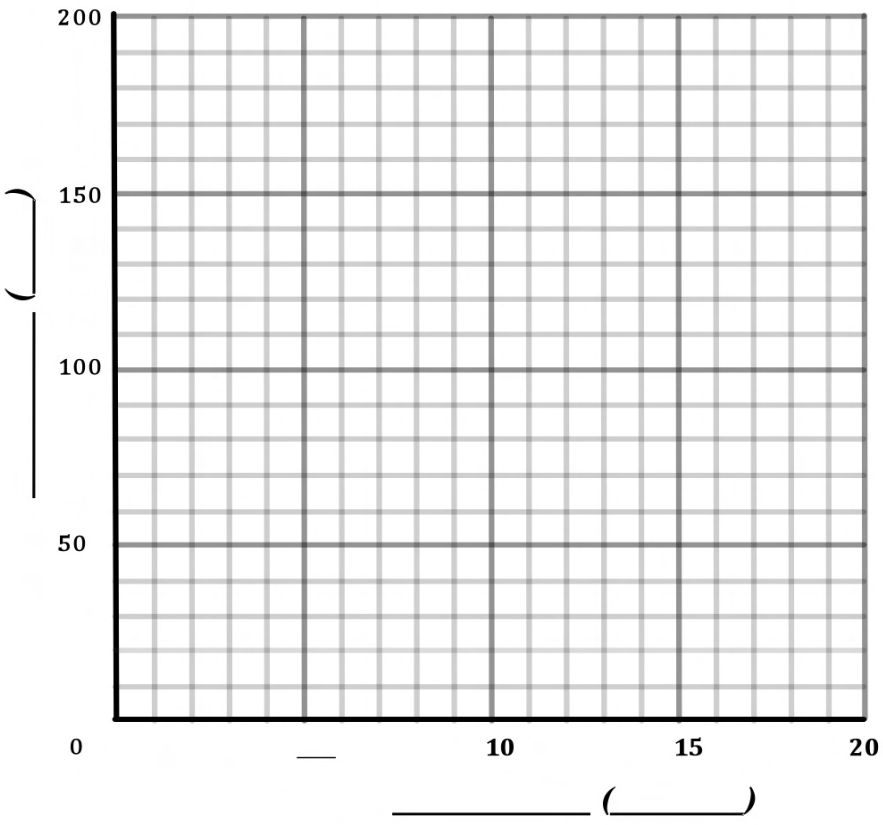
between hours 10 to 15

_____ = _____ ***of*** ___ ***per*** ____

between hours 15 to 20

_____ = _____ ***of*** ___ ***per*** ____

Create your own graph



Determine the rate of change

between ____ ____ to ____

_____

between ____ ____ to ____

_____

between ____ ____ to ____

_____

between ____ ____ to ____

_____

Assignment on Slopes

Name: ___ANSWER KEY___
period: ____

Identify each line with a positive slope.

A, B, D, I

Identify each line with a negative slope.

C, E, F, H

Determine the slope of each line.

A $\frac{2}{1} = 2$

B $\frac{2}{6} = \frac{1}{3}$

C $\frac{-2}{4} = \frac{-1}{2}$

D $\frac{4}{2} = 2$

E $\frac{-1}{2}$

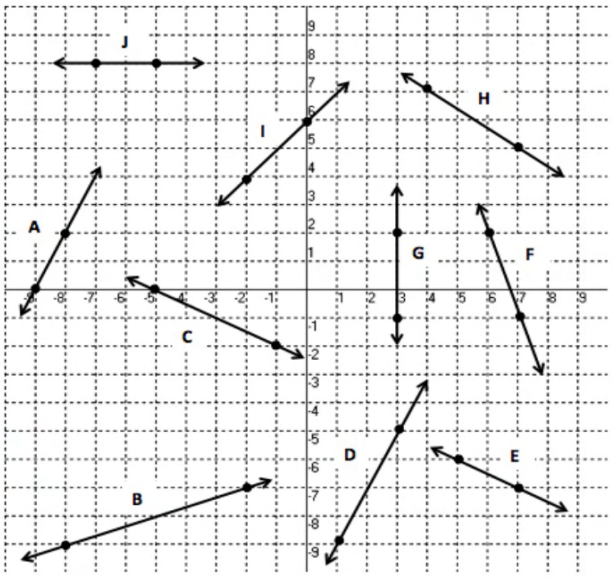
F $\frac{-3}{1} = -3$

G $\frac{3}{0}$ = undefined

H $\frac{-2}{3}$

I $\frac{2}{2} = 1$

J $\frac{0}{2} = 0$



Which line is steeper?
(circle each correct answer)

(A) or I

(F) or H

Identify the lines with the same slope.

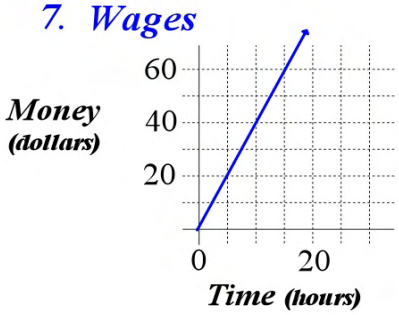
A and D

C and E

What does the slope of each line represent?

Answers

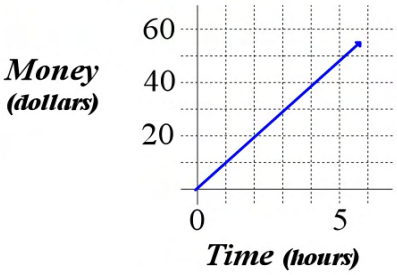
7. Wages



$Slope = \frac{40 \text{ dollars}}{10 \text{ hours}}$

Amount earned is ***an increase*** of ***4 dollars*** per ***hour***

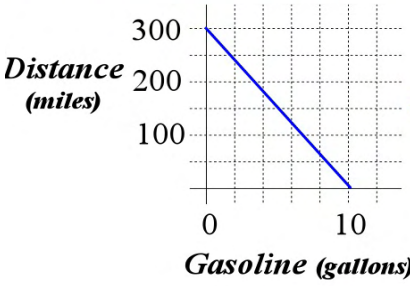
8. Arcade Game



$Slope = \frac{50 \text{ dollars}}{5 \text{ hours}}$

Amount of profit is ***an increase*** of ***10 dollars*** per ***hour***

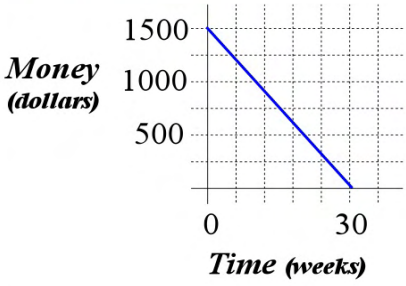
9. Gasoline usage



$Slope = \frac{300 \text{ miles}}{10 \text{ gallons}}$

Amount of gas is ***a decreased*** by ***30 miles*** per ***gallon***

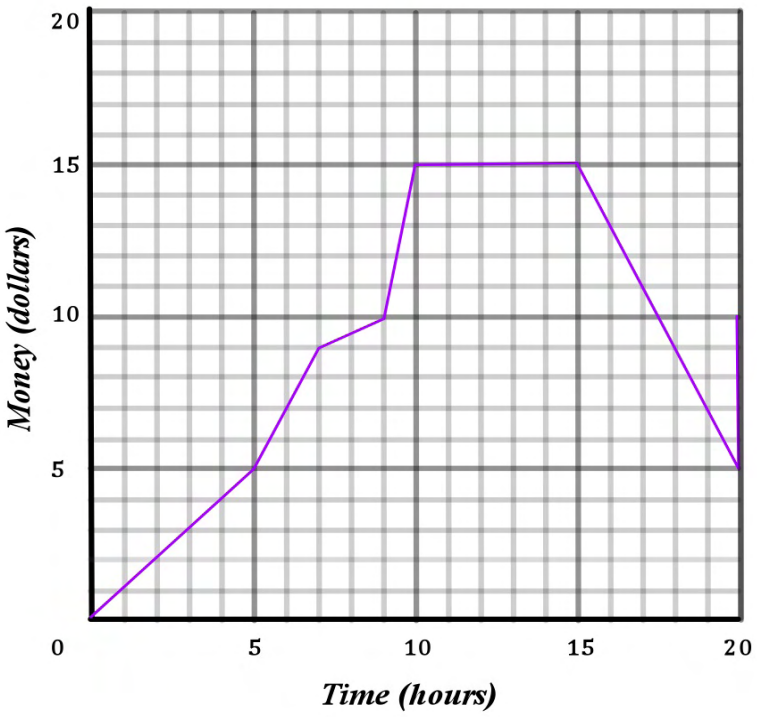
10. Loan



$Slope = \frac{1500 \text{ dollars}}{30 \text{ weeks}}$

Amount of debit owed is ***a decrease*** of ***50 dollars*** per ***week***

Profits at Hamburger Heaven



Determine the rate of change

Answers

between hours 0 to 5

$\frac{5 \text{ dollars}}{5 \text{ hours}}$ = *increase of $1 per hour*

between hours 5 to 7

$\frac{4 \text{ dollars}}{2 \text{ hours}}$ = *increase of $2 per hour*

between hours 7 to 9

$\frac{1 \text{ dollars}}{2 \text{ hours}}$ = *increase of $0.50 per hour*

between hours 9 to 10

$\frac{5 \text{ dollars}}{1 \text{ hour}}$ = *increase of $5 per hour*

between hours 10 to 15

$\frac{0 \text{ dollars}}{5 \text{ hours}}$ = *$0 per hour*

between hours 15 to 20

$\frac{-10 \text{ dollars}}{5 \text{ hours}}$ = *decrease of $2 per hour*