Get out your homework from yesterday and have it ready to check!
Check your answers with the the key below.

Classwork - Proportional Relationships

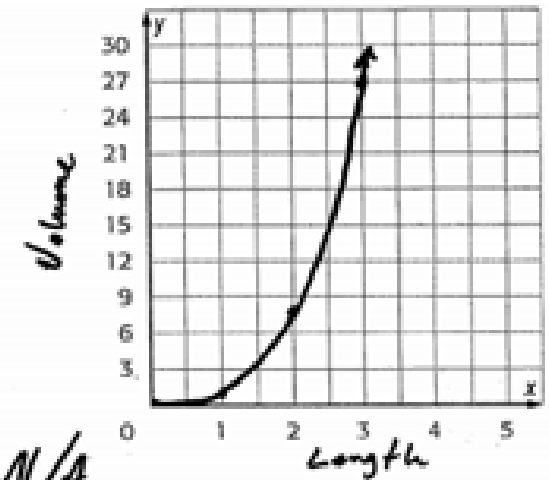
Determine whether the relationship between the two quantities shown in each table are proportional by graphing on the coordinate plane.

1.

Volume of a Cube	
Side Length (ft)	Volume (ft^3)
1	1
2	8
3	27

+1 +7 +19

The line is not straight, so it is nonproportional



Circle Answer → Proportional OR Nonproportional

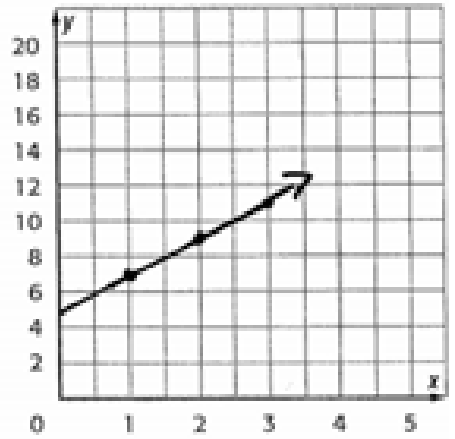
If it is proportional, what is the constant of proportionality (unit rate)? N/A

2.

DVD Rental	
Number of DVDs	Cost ($)
1	7
2	9
3	11

+1 +2 +2

The line does not go through the origin so it is nonproportional



Circle Answer → Proportional OR Nonproportional

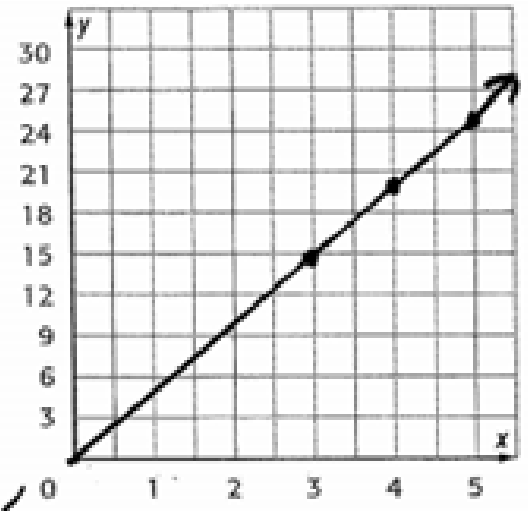
If it is proportional, what is the constant of proportionality (unit rate)? N/A

3.

Gallons of Gas Used Per Hour	
Number of Hours	Gallons of Gas
3	15
4	20
5	25

$\frac{5}{1}$ $\frac{5}{1}$ $\frac{5}{1}$

The line is straight and goes through the origin so it is proportional



Circle Answer → Proportional OR Nonproportional

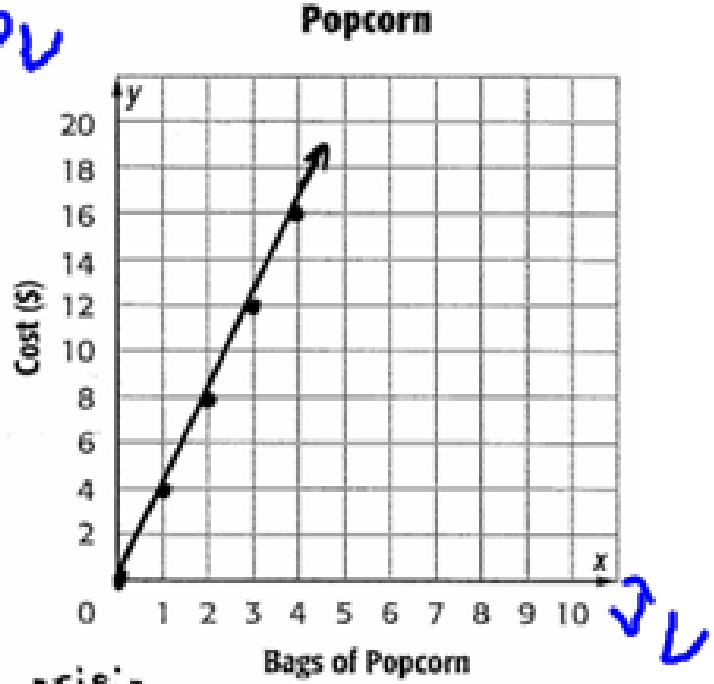
If it is proportional, what is the constant of proportionality (unit rate)? 5gal / 1h

4.

Popcorn	
Bags of Popcorn	Cost ($)
0	0
1	4
2	8
3	12
4	16

$= \frac{4}{1}$ $= \frac{4}{1}$ $= \frac{4}{1}$ $= \frac{4}{1}$

DV



IV

$\frac{DV}{IV} \rightarrow \frac{y}{x}$

Circle Answer → Proportional OR Nonproportional

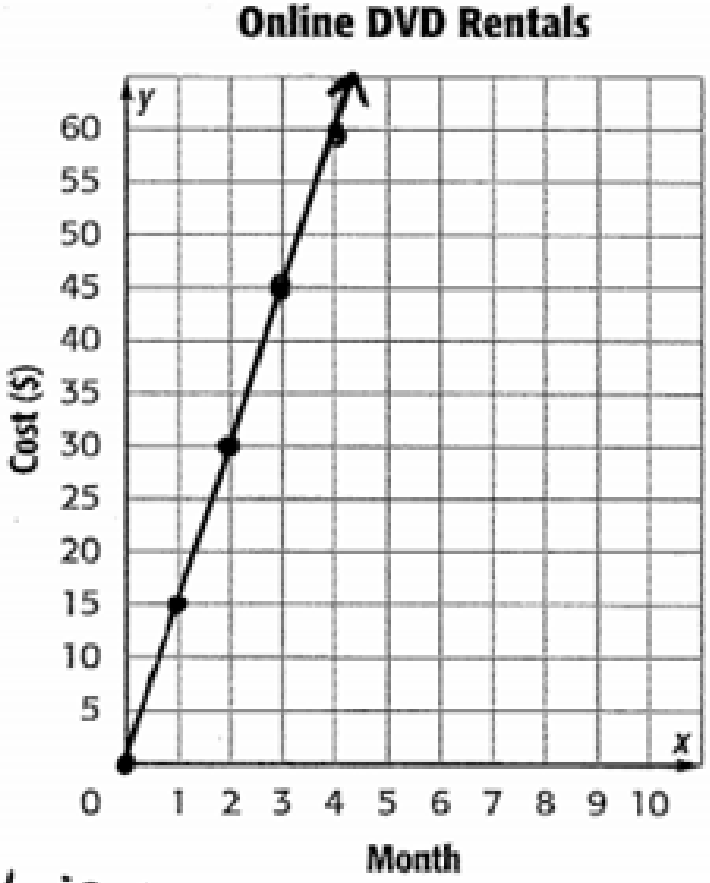
It is proportional because it is a straight line that passes through the origin

If it is proportional, what is the constant of proportionality (unit rate)? $4 / 1 bag

5. **MOVIES** An online DVD rental company charges $15 a month for unlimited rentals. Determine whether the total paid after each month is proportional to number of months by graphing on the coordinate plane. Explain your reasoning.

Movie Rentals	
~~# of Movies~~ Months	Cost ($)
0	0
1	15
2	30
3	45
4	60

$= \frac{15}{1}$ $= \frac{15}{1}$ $= \frac{15}{1}$ $= \frac{15}{1}$



Circle Answer: **Proportional** OR **Nonproportional**

Proportional because it is a straight line that passes through the origin

If it is proportional, what is the constant of proportionality (unit rate)? $15/1 month

Is it Proportional?

If I can write a ratio for each pair of numbers and all the ratios are equivalent (equal) to one another.

If true → The data is proportional.

1) The following table represents the distance a family travels after so many hours.

Hours	Miles
3 • 62	186
5 • 62	310
6 • 62	372
9 • 62	558
10 • 62	620

A) Is the situation proportional? Justify your answer.

$\frac{186}{3}=62$ $\frac{310}{5}=62$ $\frac{372}{6}=62$ $\frac{558}{9}=62$ $\frac{620}{10}=62$

yes, it is proportional

B) What is the constant of proportionality (unit rate) for the situation? How many miles do they travel in 1 hour?

62 mi/h

C) Is there a number you can multiply the number hours by to get to the number of miles every pair? If yes, what is that number? (Show it in the table)

D) The number you use to multiple each time is called the constant of proportionality

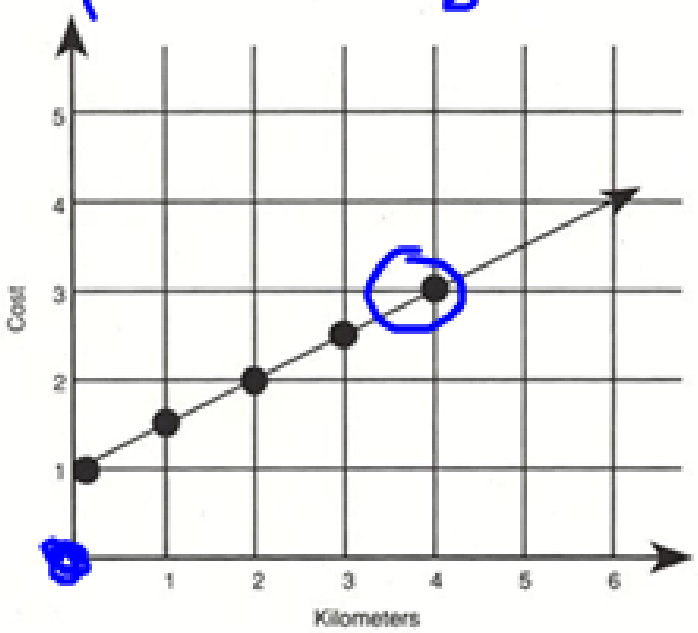
E) Write a rule that shows the connection between hours and miles traveled.

$62 \cdot hours = miles$

2) Transfer the information from the graph to the table.

$\frac{1.50}{1} = 1.5$ $\frac{2}{2} = 1$

Kilometers	Cost ($)
0	1
1	1.50
2	2
3	2.50
4	3



A) Is this situation proportional? Explain.

No, the line doesn't pass through origin.

B) If proportional, what is the constant of proportionality?

N/A

C) Can you make a rule like the rule from #1? Explain.

No, because there is no constant of proportionality

D) What does the point (4,3) represent in the situation?

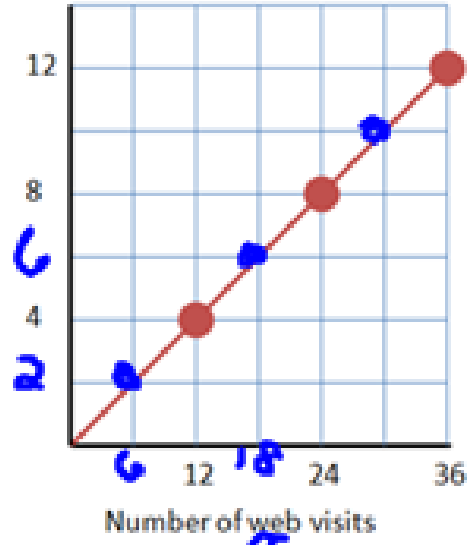
For 4km it will cost $3.

3) Determine if the following situation is proportional and answer the following questions. Explain.

A) Transfer the information from the graph into the table. (Need more than the 3 points shown in graph.)

B) Is the data proportional? Show your reasoning.

Yes, it is a straight line that passes through the origin



DV

IV

Visits	Downloads
6 ·1/2	2
12 ·1/2	4
18	6
24	8
36	10

C) If proportional, what is the constant of proportionality (unit rate)?

$\frac{1}{3}$ downloads/visit

D) Can you write a rule for this situation? If yes, write one.

$\frac{1}{3} \cdot \text{visits} = \text{downloads}$

$\frac{2}{6} = \frac{1}{3} = 0.3$

$\frac{4}{12} = \frac{1}{3} = 0.3$

E) What does the point (24,8) represent in the situation?