

Any Confusion about Conversions?

Inch by inch, life's a cinch...

Looking at a ruler, Mr. Smith finds that 12 inches is almost exactly 30 cm. Looking at a meter stick, he measures that it is almost 40 inches.

Represent the relationship between inches and centimeters in as many different ways as possible.

Yard by yard, it's very hard!

Mr. Laan knows that in a yard, there are exactly 3 feet. Represent this relationship in different ways.

Baby it's cold outside!

The local news has a forecast calling for a daytime high temperature of -5°C , which they say is 23°F , and an overnight low of -15°C or 5°F . Mr. Smith knows a commonly known conversion between degrees Celsius and Fahrenheit is that $10^{\circ}\text{C} = 50^{\circ}\text{F}$.

Represent the relationship between Celsius and Fahrenheit.

Show the relationship between Celsius and Fahrenheit in the opposite order by switching them from the dependent to independent variables and vice versa (i.e. switch the x and y variable).

If body temperature is 98.6°F , what is it in $^{\circ}\text{C}$?

If a hot day is 35°C , what is it in $^{\circ}\text{F}$?

Hmmm interesting... Is there a temperature in Celsius that is the same in Fahrenheit?

Consolidation

What are some similarities and differences between converting lengths and temperatures?

similarities

differences

Define the following terms with your teacher:

a) *Rate of Change* –

b) *Start Value* –

c) *Direct Variation* –

d) *Partial Variation* –

Give an example of both direct (**d**) and partial (**p**) variation in each of these forms:

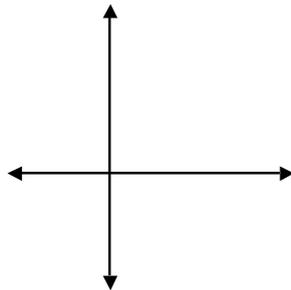
Tables

Graphs

Descriptions

Equations

x	y_d	y_p

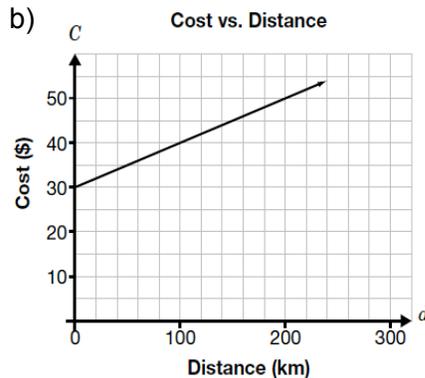


Practice

1. Label each as **partial** or **direct** variation. Also find which representations are the **same** relationship.

a)

Photos	Cost
5	\$37.50
10	\$40.00
15	\$42.50
20	\$45.00



c)

Hours	Distance
0	0
1	5
2	10
3	15
4	20

d) An electrician charges \$50 plus \$30 per hour to do electrical work on any house.

e) $y = 0.10x + 30$

2. From driving in the United States, Mr. Smith knows that 100 miles is 160 kilometers. Find an **equation** that models this relationship. **Use it** to find out how many miles there are in 500 kilometers.

3. Mr. Laan is planning a vacation for March Break. He finds that a conversion rate between Canadian and American dollars is \$1 CDN is equal to \$.93 US.

a) **Represent** this relationship in 4 different ways. Is it **partial** or **direct** variation? **Justify**.

c) If Mr. Laan has \$500 CDN for spending money on vacation, **how much** American money is that?

d) If the vacation property costs \$700 American, **how much** will it cost in Canadian dollars?

4. Below is a conversion chart used for different shoe sizes around the world.

Shoe Size Conversion Chart

US/Canada	5	6	7	8	9	10	11	12
UK	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
Europe	35	36	37	38	39	40	41	42
Australia	4	5	6	7	8	9	10	11
Japan	21	22	23	24	25	26	27	28
Mexico			4	5	6	7	8	9
Inches	9	9.25	9.5	9.75	10	10.25	10.5	10.75

a) In less than 30 seconds, can you check whether there is a direct/partial variation between US/Canada **shoe sizes** and the **length of the shoe** in inches? If so show **how**.

b) Find an **equation** that models the relationship between the following shoe sizes, and the length of the shoe in inches (make the number of inches, n , be the independent variable). Are both **partial variation**?

US/Canada

Europe

c) **How big** is an American size 20 shoe in inches? In a European shoe size?

5. At her fitness club, Meg is charged \$15 per month. The total cost per for 12 months is \$270. Is the relationship between cost & number of months, **direct** or **partial** variation, and what's the **initial fee**?