

- 4 Rush Computer Repair makes service calls to solve computer problems. They charge \$40 for technician travel to the work site and \$55 per hour for time spent working on the problem itself. What symbolic rule shows how the cost of a computer repair depends on actual time required to solve the problem?

$$C = 40 + 55h$$

where  $C$  is cost of computer repair  
and  $h$  is number of hours spent on job

- 5 The freshman class officers at Interlake High School ordered 1,200 fruit bars to sell as a fund-raising project. They paid \$0.30 per bar at the time the order was placed. They plan to sell the fruit bars at school games and concerts for \$0.75 apiece. No returns of unsold bars are possible. What rule shows how project profit depends on the number of bars sold?

$$.30(1200) = 360$$

$$P = 0.75n - 360$$

where  $P$  is profit and  $n$  is number of bars

7 Experiments with a bungee jump suggested the rule  $L = 30 + 0.2w$  relating stretched length of the cord (in feet) to weight of the jumper (in pounds).

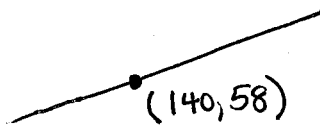
a. What will be the stretched cord length for a jumper weighing 140 pounds?

SHOW YOUR WORK USING A TABLE OR GRAPH.

Table

X	$y_1 = 30 + 0.2x$
139	57.8
140	58
141	58.2

Graph  $y_1 = 30 + 0.2x$



58 feet

Window: x min 120  
 x max 200  
 x scl 1  
 y min 0  
 y max 100  
 y scl 10

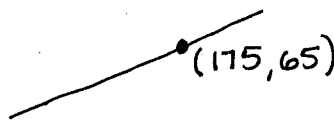
b. What jumper weights will stretch the cord to a length of at most 65 feet?

SHOW YOUR WORK USING A TABLE OR GRAPH.

Table

X	$y_1 = 30 + 0.2x$
174	64.8
175	65
176	65.2

Graph  $y_1 = 30 + 0.2x$



175 pounds

Same window as above

- 2 The country with the second largest population in the world is India, with about 1.2 billion people in 2011. The birth rate in India is about 2.3% per year and the death rate is about 0.7% per year.

$$2.3 - 0.7 = 1.6$$

- a. Estimate the population of India for each of the next 5 years and record your estimates in a data table.

YEAR	POPULATION (in billions)
2011	1.2
2012	1.2192
2013	1.2387072
2014	1.258526515
2015	1.278662939
2016	1.299121546

calc steps:

1.2  
Enter  
1.016 Ans  
Enter  
Enter  
⋮

- b. When is it likely that the population of India will reach 1.5 billion?

In the year 2025

- c. How would your prediction in Part b change if the birth rate slows to 2.0%?

calc steps

1.2  
Enter  
1.013 Ans  
Enter  
⋮

In the year 2028

- d. Using the word *NOW* to stand for the population in any year, write rules that show how to calculate the population in the *NEXT* year:

- i. if the birth rate stays at 2.3%.

$$\text{NEXT} = 1.016 \text{ NOW} \quad \text{Starting at 1.2 billion}$$

- ii. if the birth rate slows to 2.0%.

$$\text{NEXT} = 1.013 \text{ NOW} \quad \text{starting at 1.2 billion}$$