You must get all parts of a problem correct to get the point, so be careful and check your work!

1. Find the area of a rectangle whose length is 3 feet and whose width is:

   (a) 2 feet

   (b) 7 feet

   (c) 1.8 feet

   (d) 100 feet

   (e) x feet

   Solution: Area is length times width. The length is 3 feet for each part, the width changes.

Length (constant)	Width (input, x)	Area (output, y)
3 feet	2 feet	6 square feet
3 feet	7 feet	21 square feet
3 feet	1.8 feet	5.4 square feet
3 feet	100 feet	300 square feet
3 feet	x feet	$3x$ square feet

2. Find the total cost if you buy 1 hot dog for $2 and one hamburger for:

   (a) $2

   (b) $2.50

   (c) $1.50

   (d) $3

   (e) $x

   Solution: The cost for the hotdog stays at $2. To get the total cost, add the $2 to the cost of the hamburger.

Hotdog cost (constant)	Hamburger cost (input, x)	Total cost (output, y)
$2	$2	$4
$2	$2.50	$4.50
$2	$1.50	$3.50
$2	$3	$5
$2	$x	2+x dollars

3. Find the total travel time in hours if you are averaging 60 mph and travel for:

   (a) 300 miles

   (b) 180 miles

   (c) 250 miles

   (d) 7 miles

   (e) x miles

Solution: Time is distance divided by rate as long as the units match. For example, miles divided by miles per hour get hours.

Rate in mph (constant)	Distance (input, x)	Time (output, y)
60 mph	300 miles	5 hours
60 mph	180 miles	3 hours
60 mph	250 miles	$4\frac{1}{6}$ hours or 4 hours 10 minutes or ≈ 4.17 hrs
60 mph	7 miles	$\frac{7}{60}$ hours or 7 minutes or ≈ 0.12 hrs
60 mph	x miles	$\frac{x}{60}$ hours

4. Find the total cost if hot dogs are $2 each, hamburgers are $3 each, and you buy 5 hot dogs and:

   (a) 3 hamburgers

   (b) 1 hamburger

   (c) 7 hamburgers

   (d) 28 hamburgers

   (e) x hamburgers

Solution: Since you know the cost per hot dog and the number of hot dogs, the total cost for the hot dogs is constant at (5 hot dogs)· ($2 per hot dog)=$10. The total cost for the hamburgers depends on how many burgers you buy, then the total cost for the lunch is the sum of the hot dog costs and hamburger costs.

Total hot dog costs (constant)	Number of hamburgers (input, x)	Total cost of hamburgers (middle step)	Total costs (output, y)
$10	3 hamburgers	$9	$19
$10	1 hamburger	$3	$13
$10	7 hamburgers	$21	$31
$10	28 hamburgers	$84	$94
$10	x hamburgers	$3x$	$3x + 10$ dollars

5. Find the interest earned in one year in an account earning 2.4% of your balance in interest each year if your balance for the year is:

(a) $100

(b) $800

(c) $1250

(d) $7

(e) $x

Solution: Interest earned is 2.4% of your balance which is 0.024 times your balance.

Interest rate as decimal (constant)	Account balance (input, x)	Interest earned (output, y)
0.024	$100	$2.40
0.024	$800	$19.20
0.024	$1250	$30
0.024	$7	$\approx$ $0.17
0.024	x	$0.024x$ dollars