

Notes 4.3

You are looking at new cell phone plans. You are trying to decide between two companies. Flash Cellular charges \$65 a month for the first 400 minutes and then \$0.03 for each additional minute. Horizon Cellular charges \$60 a month for the first 400 minutes and then \$0.04 for each additional minute. Describe the break-even point, the situation for which the costs are the same.

Number of Minutes x beyond the 1 st 400	Flash Cellular's Price, $65 + .03x$	Horizon Cellular's Price, $60 + .04x$
0		
50		
150		
250		
350		
450		
475		
500		
550		
650		

Number of Minutes x	Flash Cellular's Price, $65 + .03x$	Horizon Cellular's Price, $60 + .04x$
0	65	60
50	66.5	62
150	69.5	66
250	72.5	70
350	75.5	74
450	78.5	78
475	79.25	79
500	80	80
550	81.5	82
650	84.5	86

When $x \geq 500$ Flash Cellular's price is lower.

When $x \leq 500$, Horizon Cellular's price is lower.

Number of Minutes x	Flash Cellular's Price, $65 + .03x$	Horizon Cellular's Price, $60 + .04x$
0	65	60
50	66.5	62
150	69.5	66
250	72.5	70
350	75.5	74
450	78.5	78
475	79.25	79
500	80	80
550	81.5	82
650	84.5	86

The break-even point occurs when $x = 500$ and the price is \$80.

Number of Minutes x	Flash Cellular's Price, $65 + .03x$	Horizon Cellular's Price, $60 + .04x$
0	65	60
50	66.5	62
150	69.5	66
250	72.5	70
350	75.5	74
450	78.5	78
475	79.25	79
500	80	80
550	81.5	82
650	84.5	86

It is important to describe the two variables for the break-even point.

a. The x-value: How many total minutes are used when Flash and Horizon Cellular charge the same amount?

$$400 + 500 = 900 \text{ min.}$$

b. The y-value: What is the amount charged by each phone service when the prices are the same amount?

$$\text{\$ } 80$$