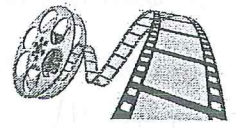


Average U.S. Movie Ticket Price Analysis Name Key



The table below shows average U.S. movie ticket prices from 1948 to 2015.

1. Choose and list at least 6 points from the data table.

(0, 0.36) (19, 1.22) (32, 2.69)
 (42, 4.22) (52, 5.39) (67, 8.43)

Year	(after 1948)	Ticket Price (\$)
1948	0	\$0.36
1958	10	\$0.68
1967	19	\$1.22
1974	26	\$1.89
1980	32	\$2.69
1985	37	\$3.55
1990	42	\$4.22
1995	47	\$4.35
2000	52	\$5.39
2005	57	\$6.41
2010	62	\$7.89
2015	67	\$8.43

Why did you choose these points?

Every other datapoint, but I skipped one so I could have the first and last datapoint.

2. Plot the points you chose in #1. Clearly label your axes.

3. Next, estimate a "line of best fit" for your data points and draw it on your graph.

Definition of "line of best fit": a line on a graph showing the general direction that a group of points seem to be heading.

Why is your line a good fit to your graph?

It approximates the growth of the point.
 It is as close as possible to each plotted point.

4. Find the gradient (slope) of your line. Choose two points ON THE LINE and show work.

(40, 4) and (60, 6)
 $x_1 \quad y_1$ $x_2 \quad y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{6 - 4}{60 - 40} = \frac{2}{20} = \frac{1}{10}$$

a) Interpret the meaning of the gradient by answering questions below:

What does your gradient represent in this situation?

~~the~~ ~~the~~ The rise of ticket price as years pass.

or: The price rises \$1 ~~every~~ every 10 years.

What does it tell you about the data?

The price of the average movie ticket rises \$1 every 10 years.

5. Define the x and y-values: x: # of years after 1998 y: Average ticket price
6. Use two points and the gradient to write an equation for your line. Show work.

$(40, 4)$ and $m = \frac{1}{10}$

$\frac{1}{10}(40) = \frac{40}{10} = \frac{4(10)}{10} = 4$

$y = mx + c$

$4 = \frac{1}{10}(40) + c$

$\frac{4}{0} = \frac{4}{0} + c$

$y = \frac{1}{10}x$

7. Verify your equation by choosing a point to substitute into your equation. Consider solving for year and ticket price.

Chosen point: (32 , 2.69)

$y = \frac{1}{10}(32)$

\$3.20

$y = \frac{32}{10}$

$y = 3.2$

“How well does your equation represent your points?”

Fairly well. ~~My~~ My equation gave me a different value than the original data provided, but the numbers are still reasonably close.

8. Use your equation to estimate the average U.S. movie ticket price in 2025. (x = 77)

$y = \frac{1}{10}(77)$

$y = \frac{77}{10}$

$y = 7.7$

\$7.70

By my equation, I predict that the average U.S. movie ticket will cost \$7.70 in 2025.

9. Defend whether this prediction is or is not realistic?

It is not realistic. The average price in 2015 was \$8.43. The data does not go down, only up. So I would not expect the price to be \$7.70 in 2025.

¹ <http://www.natoonline.org/data/ticket-price/>

² <https://www.mathsisfun.com/definitions/line-of-best-fit.htm>

