

10. [14 points] Let $P(t)$ be the price of a house (in thousands of dollars) t years after it was built. The function $P(t)$ is given by

$$P(t) = 5t^2 - 18t + 225.$$

- a. [2 points] What is the price of the house five years after it was built? Include units.
- b. [3 points] Find the vertical intercept of the function $P(t)$ and provide a practical interpretation for it. Include units.

Vertical intercept = _____

Practical interpretation:

- c. [5 points] Use the method of completing the square to put the formula for $P(t)$ in vertex form. Show all your algebraic work step-by-step.

$P(t) =$ _____

This problem continues on the next page.

Problem continued from the previous page.

Let $P(t)$ be the price of a house (in thousands of dollars) t years after it was built. The function $P(t)$ is given by

$$P(t) = 5t^2 - 18t + 225.$$

d. [2 points]

What is the highest price of the house during the first 5 years after it was built? In what year was the highest price attained?

Highest price = _____

Highest price of the house when t =_____.

e. [2 points]

What is the lowest price of the house during the first 5 years after it was built? In what year was the lowest price attained?

Lowest price = _____

Lowest price of the house when t =_____.