

## Answer on Question #61967 – Math – Calculus

### Question

1 Evaluate the limit

$$\lim_{h \rightarrow 0} 2(-3+h)^2 - 18h$$

12

8

14

6

### Solution

$$\lim_{h \rightarrow 0} (2(-3 + h)^2 - 18h) = (2(-3 + 0)^2 - 18 \cdot 0) = 18.$$

**Answer:** 18.

### Question

2 Evaluate the limit

$$\lim_{t \rightarrow 4} \frac{t - \sqrt{3t+4}}{4-t}$$

-3/8

-5/8

-1/8

3/4

### Solution

$$\begin{aligned} \lim_{t \rightarrow 4} \frac{t - \sqrt{3t+4}}{4-t} &= \lim_{t \rightarrow 4} \frac{(t - \sqrt{3t+4})(t + \sqrt{3t+4})}{(4-t)(t + \sqrt{3t+4})} = \lim_{t \rightarrow 4} \frac{t^2 - (3t+4)}{(4-t)(t + \sqrt{3t+4})} = \\ &= \lim_{t \rightarrow 4} \frac{t^2 - 3t - 4}{(4-t)(t + \sqrt{3t+4})} = \lim_{t \rightarrow 4} \frac{(t-4)(t+1)}{(4-t)(t + \sqrt{3t+4})} = - \lim_{t \rightarrow 4} \frac{t+1}{t + \sqrt{3t+4}} = - \frac{4+1}{4 + \sqrt{3 \cdot 4 + 4}} = - \frac{5}{8}. \end{aligned}$$

**Answer:**  $-\frac{5}{8}$ .