Answer on Question #82508 – Math – Algebra

Question

Sir

$$2t2\text{-}9t+4\leq 0$$

Sir its a equation and You give the answer
S=2(t+1/2)(t-4)≤0 how its in this step i don't understand

Solution

To solve the inequality $2t^2 - 9t + 4 \leq 0$, you must first solve the equation

$$2t^2 - 9t + 4 = 0$$

We use the formula

$$D = b^2 - 4ac.$$

$$D = (-9)^2 - 4 \cdot 2 \cdot 2 = 81 - 32 = 49.$$

$$t_1 = \frac{-b+\sqrt{D}}{2a} = \frac{9+7}{4} = 4;$$

$$t_2 = \frac{-b+\sqrt{D}}{2a} = \frac{9-7}{4} = 1/2.$$

We use the formula:

$$at^2 + bt + c = a(t - t_1)(t - t_2).$$

We have:

$$2t^2 - 9t + 4 = 2(t - 4)\left(t - \frac{1}{2}\right).$$

Answer: $2(t - 4)\left(t - \frac{1}{2}\right)\leq 0.$