Physics Application

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The ball is thrown at $t = 0$

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Conclusion: the height of the ball when it is thrown is $48\,ft$

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The time of the maximum height is: $h = \frac{-32}{2 \cdot (-16)}$

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The time of the maximum height is: $h = \frac{-32}{2 \cdot (-16)} = 1$

Since $t = 1$, the max height is: $f(1) = -16 \cdot 1^2 + 32 \cdot 1 + 48 = 64$

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When the ball hits the ground, $0 = f(t)$

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So, to find t, we need to solve: $0 = -16t^2 + 32t + 48$

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Conclusion: The ball hits the ground after 3 seconds