A.A.8: Quadratic Functions: Analyze and solve verbal problems that involve quadratic equations

1 The height of a golf ball hit into the air is modeled by the equation $h = -16t^2 + 48t$, where h represents the height, in feet, and t represents the number of seconds that have passed since the ball was hit. What is the height of the ball after 2 seconds?
1) 16 ft
2) 32 ft
3) 64 ft
4) 80 ft

2 A model rocket is launched into the air from ground level. The height, in feet, is modeled by $p(x) = -16x^2 + 32x$, where x is the number of elapsed seconds. What is the total number of seconds the model rocket will be in the air?
1) 1
2) 2
3) 0
4) 16

3 The equation $P = 0.0089t^2 + 1.1149t + 78.4491$ models the United States population, P, in millions since 1900. If t represents the number of years after 1900, then what is the estimated population in 2025 to the *nearest tenth of a million*?
1) 217.8
2) 219.0
3) 343.9
4) 356.9

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Answer Section

1 ANS: 2

$h = -16(2)^2 + 48(2) = -64 + 96 = 32$

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2 ANS: 2

$-16x^2 + 32x = 0$

$-16x(x - 2) = 0$

$x = 0, 2$

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3 ANS: 4

$P = 0.0089(125)^2 + 1.1149(125) + 78.4491 \approx 356.9$

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