

Solving Quadratics Review

1. Solve each equation.

a) $(2x - 5)(3x + 8) = 0$

b) $x^2 + 12x + 32 = 0$

c) $3x^2 - 10x - 8 = 0$

d) $2x^2 = 1 - 5x$

e) $5x(x - 1) + 5 = 7 + x(1 - 2x)$

2. The height, h , in metres, of a water balloon that is launched across a football stadium can be modelled by $h = -0.1x^2 + 2.4x + 8.1$, where x is the horizontal distance from the launching position, in metres. How far has the balloon travelled when it is 10 m above the ground?

3. Without solving, determine the number of solutions that each equation has.

a) $2x^2 - 5x + 1 = 0$

b) $4x^2 - 15 = 0$

c) $5(x^2 + 2x + 5) = -2(2x - 25)$

4. Skydivers jump out of an airplane at an altitude of 3.5 km. The equation $H = 3500 - 5t^2$ models the altitude, H , in metres, of the skydivers at t seconds after jumping out of the airplane.
- How far have the skydivers fallen after 10 s?
 - The skydivers open their parachutes at an altitude of 1000 m. How long did they free fall?

5. Two integers differ by 12 and the sum of their squares is 1040. Determine the integers.

6. A rapid-transit company has 5000 passengers daily, each currently paying a \$2.25 fare. For each \$0.50 increase, the company estimates that it will lose 150 passengers daily. If the company must be paid at least \$15,275 each day to stay in business, what fare must they charge to produce this amount of revenue?