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| 1. Solve using any method: | 2. Simplify.   1. 2 |
| 3. Given the following equations, using completing the square, find:   1. State whether it is a max or min 2. The value of the max or min 3. The x-value of the max or min 4. The axis of symmetry 5. If the parabola opens up or down | |
| 4. Determine the equation of the quadratic function in the form *y = ax2 + bx + c* that passes through the point (2, 7) and has zeros of 3 and – 4. | |
| 5. Solve the system of equations using an algebraic method. | |
| 6. For what values of *k*  will the function have no zeros? | |
| 7. A rectangle has an area of 330m2. One side is 7 metres longer than the other side. What are the dimensions of the rectangle? | |
| 8. A daredevil jumps off the CN Tower and falls freely for several seconds before releasing his parachute. His height, *y*, in metres, *t* seconds after jumping can be modelled by      How long after jumping did the daredevil release his parachute? | |
| 9. The population of a region can be modelled by the function, where y is the population in thousands and t is the time in years since the year 1995.   * 1. What was the population in 1995?   2. What will be the population in 2010? | |
| 10. The profit function for a new product is given by , where x is the number sold in thousands. How many items must be sold for the company to break even? | |
| 11. It costs a bus company $225 to run a minibus on a ski trip, plus $30 per passenger. The bus has seating for 22 passengers, and the company charges $60 per fare if the bus is full. For each empty seat, the company has to increase the ticket price by $5. How many empty seats should the bus run with to maximize profit from this trip? | |
| 12. Andrew mows a strip of uniform width around his 25m by 15m rectangular lawn that is 60% of the original area. What is the width of the strip? | |
| 13. If and determine the value of k so that there is exactly one point of intersection between the two parabolas. | |