

5.8 - Applications of Polynomials

Note Title

①

Safety Flares. Suppose that a flare is launched upward with an initial velocity of 80 ft/sec from a height of 224 ft. Its height in feet, $h(t)$, after t seconds is given by

$$h(t) = -16t^2 + 80t + 224.$$

After how long will the flare reach the ground?

②

Cabinet Making. Dovetail Woodworking determines that the revenue R , in thousands of dollars, from the sale of x sets of cabinets is given by $R(x) = 2x^2 + x$. If the cost C , in thousands of dollars, of producing x sets of cabinets is given by $C(x) = x^2 - 2x + 10$, how many sets must be produced and sold in order for the company to break even?

3

EXAMPLE 3 *Display of a Sports Card.* A valuable sports card is 4 cm wide and 5 cm long. The card is to be sandwiched by two pieces of Lucite, each of which is $5\frac{1}{2}$ times the area of the card. Determine the dimensions of the Lucite that will ensure a uniform border around the card.



4

Tent Design. The triangular entrance to a tent is 2 ft taller than it is wide. The area of the entrance is 12 ft^2 . Find the height and the base.

