53. Find any point or points on the graph of $y = (x-5)(x+10)$ so that the slope equals 25. Sketch a graph of y and the tangent line or lines.

54. Find any point or points on the graph of $G(x) = (2x+1)(x-3)$ so that the slope is –20. Sketch a graph of G and the tangent line or lines.

55. Sketch a graph of $F(x) = \dfrac{30x}{2x^2 + 5}$ on the x-interval $[-5, 10]$. Determine the (x, y)-coordinates of any point with a horizontal tangent line, and sketch this (or these) horizontal tangent(s). Round to the nearest hundredth.

56. Bacterial growth. It is estimated the population of a bacterial culture after t hours is approximately $N(t) = \dfrac{t^2 - 2t}{3\sqrt{t} + 2}$, where $N(t)$ is in thousands and $2 \le t \le 10$. Find the rate of growth after 4 hours.

57. Marginal revenue. The demand function for a particular item is given by $D(x) = \dfrac{115}{3x+1}$. Find the marginal revenue when $x = 3$.

58. Marginal profit. The profit from the sale of x items is given by $P(x) = (2 - 0.5x)(0.5x - 5)$, where $P(x)$ is in hundreds of dollars and $2 \le x \le 10$. Find the marginal profit when $x = 5$.

59. Marginal cost. The cost of producing x items of a product is given by $C(x) = (0.1x + 100)(0.1x + 20) - 600$. Find the marginal cost when $x = 60$.

60. Velocity of a particle. A particle is moving slowly along a line. Its position after t seconds is $S(t) = \dfrac{t}{t^2 + 4}$ feet. Find the velocity when the particle has been moving for 3 seconds.

61. Population growth. It is estimated that t years from now the population of a city will be $P(t) = (0.6t - 7)(0.5t + 6) + 85$ in thousands. How fast will the population be growing in 10 years?