1. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{-21}{25}, -5\right)$ to the graph of the function: $f(x) = \frac{5}{x}$.

2. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{-24}{25}, -5\right)$ to the graph of the function: $f(x) = \frac{5}{x}$.

3. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{4}{3}, -2\right)$ to the graph of the function: $f(x) = \frac{-3}{x}$.

4. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{-3}{5}, 5\right)$ to the graph of the function: $f(x) = \frac{-4}{x}$.

5. Find the point of tangency and the equation of the tangent line passing through the point $P(-3, -1)$ to the graph of the function: $f(x) = \frac{-1}{x}$.

6. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{-5}{4}, -2\right)$ to the graph of the function: $f(x) = \frac{-2}{x}$.

7. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{12}{5}, -2\right)$ to the graph of the function: $f(x) = \frac{-5}{x}$.

8. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{-3}{4}, 2\right)$ to the graph of the function: $f(x) = \frac{-2}{x}$.

9. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{24}{25}, -5\right)$ to the graph of the function: $f(x) = \frac{-5}{x}$.

10. Find the point of tangency and the equation of the tangent line passing through the point $P\left(\frac{-7}{6}, -2\right)$ to the graph of the function: $f(x) = \frac{-3}{x}$.

Answers:

1. $y = \frac{-125}{9}x + \frac{-50}{3}$ $Q\left(\frac{-3}{5}, \frac{-25}{3}\right)$ or $y = \frac{-125}{49}x + \frac{-50}{7}$ $Q\left(\frac{-7}{5}, \frac{-25}{7}\right)$

2. $y = \frac{-125}{16}x + \frac{-25}{2}$ $Q\left(\frac{-4}{5}, \frac{-25}{4}\right)$ or $y = \frac{-125}{36}x + \frac{-25}{3}$ $Q\left(\frac{-6}{5}, \frac{-25}{6}\right)$

3. $y = \frac{3}{4}x + -3$ $Q\left(2, \frac{-3}{2}\right)$ or $y = 3x + -6$ $Q\left(1, -3\right)$

4. $y = \frac{25}{9}x + \frac{20}{3}$ $Q\left(\frac{-6}{5}, \frac{10}{3}\right)$ or $y = 25x + 20$ $Q\left(\frac{-2}{5}, 10\right)$

5. $y = \frac{1}{9}x + \frac{-2}{3}$ $Q\left(3, \frac{-1}{3}\right)$ or $y = 1x + 2$ $Q\left(-1, 1\right)$

6. $y = \frac{8}{25}x + \frac{-8}{5}$ $Q\left(\frac{5}{2}, \frac{-4}{5}\right)$ or $y = 8x + 8$ $Q\left(\frac{-1}{2}, 4\right)$

7. $y = \frac{5}{9}x + \frac{-10}{3}$ $Q\left(3, \frac{-5}{3}\right)$ or $y = \frac{5}{4}x + -5$ $Q\left(2, \frac{-5}{2}\right)$

8. $y = \frac{8}{9}x + \frac{8}{3}$ $Q\left(\frac{-3}{2}, \frac{4}{3}\right)$ or $y = 8x + 8$ $Q\left(\frac{-1}{2}, 4\right)$

9. $y = \frac{125}{36}x + \frac{-25}{3}$ $Q\left(\frac{6}{5}, \frac{-25}{6}\right)$ or $y = \frac{125}{16}x + \frac{-25}{2}$ $Q\left(\frac{4}{5}, \frac{-25}{4}\right)$

10. $y = \frac{12}{49}x + \frac{-12}{7}$ $Q\left(\frac{7}{2}, \frac{-6}{7}\right)$ or $y = 12x + 12$ $Q\left(\frac{-1}{2}, 6\right)$

Solutions:

1. The slope of the line segment passing through the given point $P\left(\frac{-21}{25}, -5\right)$ and the point of tangency $Q(x, y)$ is given by $m = \frac{y-(-5)}{x-\left(\frac{-21}{25}\right)}$ (1) where $y = \frac{5}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \frac{-5}{x^2}$ (3)

Let use (1) and (2) and (3): $\frac{\frac{5}{x}-(-5)}{x-\left(\frac{-21}{25}\right)} = \frac{-5}{x^2}$ (4)

Let cross-multiply (4): $5x - (-5)x^2 = 5\left(\frac{-21}{25}\right) - (5)x$ and finally: $-5x^2 + (-10)x + \frac{-21}{5} = 0$ (5)

Use quadratic formula to solve (5): $x = \frac{10 \pm \sqrt{(10)^2 - 4(-5)\left(\frac{-21}{5}\right)}}{2(-5)} = \frac{5 \pm 2}{-5}$

Solution 1: $x_1 = \frac{5-2}{-5} = \frac{-3}{5}$; $y_1 = \frac{5}{\frac{-3}{5}} = \frac{-25}{3}$; $m_1 = \frac{-5}{\left(\frac{-3}{5}\right)^2} = \frac{-125}{9}$

$\therefore$ Point of tangency: $Q_1\left(\frac{-3}{5}, \frac{-25}{3}\right)$ Tangent line: $y - \left(\frac{-25}{3}\right) = \frac{-125}{9}\left[x - \left(\frac{-3}{5}\right)\right]$ or $y = \frac{-125}{9}x + \frac{-50}{3}$

Solution 2: $x_2 = \frac{5+2}{-5} = \frac{-7}{5}$; $y_2 = \frac{5}{\frac{-7}{5}} = \frac{-25}{7}$; $m_2 = \frac{-5}{\left(\frac{-7}{5}\right)^2} = \frac{-125}{49}$

$\therefore$ Point of tangency: $Q_2\left(\frac{-7}{5}, \frac{-25}{7}\right)$ Tangent line: $y - \left(\frac{-25}{7}\right) = \frac{-125}{49}\left[x - \left(\frac{-7}{5}\right)\right]$ or $y = \frac{-125}{49}x + \frac{-50}{7}$

2. The slope of the line segment passing through the given point $P\left(\frac{-24}{25}, -5\right)$ and the point of tangency $Q(x, y)$ is given by $m = \frac{y-(-5)}{x-\left(\frac{-24}{25}\right)}$ (1) where $y = \frac{5}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \frac{-5}{x^2}$ (3)

Let use (1) and (2) and (3): $\frac{\frac{5}{x}-(-5)}{x-\left(\frac{-24}{25}\right)} = \frac{-5}{x^2}$ (4)

Let cross-multiply (4): $5x - (-5)x^2 = 5\left(\frac{-24}{25}\right) - (5)x$ and finally: $-5x^2 + (-10)x + \frac{-24}{5} = 0$ (5)

Use quadratic formula to solve (5): $x = \frac{10 \pm \sqrt{(10)^2 - 4(-5)\left(\frac{-24}{5}\right)}}{2(-5)} = \frac{5 \pm 1}{-5}$

Solution 1: $x_1 = \frac{5-1}{-5} = \frac{-4}{5}$; $y_1 = \frac{5}{\frac{-4}{5}} = \frac{-25}{4}$; $m_1 = \frac{-5}{\left(\frac{-4}{5}\right)^2} = \frac{-125}{16}$

$\therefore$ Point of tangency: $Q_1\left(\frac{-4}{5}, \frac{-25}{4}\right)$ Tangent line: $y - \left(\frac{-25}{4}\right) = \frac{-125}{16}\left[x - \left(\frac{-4}{5}\right)\right]$ or $y =$

$\frac{-125}{16}x + \frac{-25}{2}$

Solution 2: $x_2 = \frac{5+1}{-5} = \frac{-6}{5}$; $y_2 = \frac{5}{\frac{-6}{5}} = \frac{-25}{6}$; $m_2 = \frac{-5}{\left(\frac{-6}{5}\right)^2} = \frac{-125}{36}$

$\therefore$ Point of tangency: $Q_2\left(\frac{-6}{5}, \frac{-25}{6}\right)$ Tangent line: $y - \left(\frac{-25}{6}\right) = \frac{-125}{36}\left[x - \left(\frac{-6}{5}\right)\right]$ or $y = \frac{-125}{36}x + \frac{-25}{3}$

3. The slope of the line segment passing through the given point $P\left(\frac{4}{3}, -2\right)$ and the point of tangency $Q(x, y)$ is given by $m = \frac{y-(-2)}{x - \left(\frac{4}{3}\right)}$ (1) where $y = \frac{-3}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \frac{3}{x^2}$ (3)

Let use (1) and (2) and (3): $\frac{\frac{-3}{x} - (-2)}{x - \left(\frac{4}{3}\right)} = \frac{3}{x^2}$ (4)

Let cross-multiply (4): $-3x - (-2)x^2 = -3\left(\frac{4}{3}\right) - (-3)x$ and finally: $-2x^2 + (6)x - 4 = 0$ (5)

Use quadratic formula to solve (5): $x = \frac{-6 \pm \sqrt{(-6)^2 - 4(-2)(-4)}}{2(-2)} = \frac{-3 \pm 1}{-2}$

Solution 1: $x_1 = \frac{-3-1}{-2} = 2$; $y_1 = \frac{-3}{2} = \frac{-3}{2}$; $m_1 = \frac{3}{(2)^2} = \frac{3}{4}$

$\therefore$ Point of tangency: $Q_1\left(2, \frac{-3}{2}\right)$ Tangent line: $y - \left(\frac{-3}{2}\right) = \frac{3}{4}[x - (2)]$ or $y = \frac{3}{4}x - 3$

Solution 2: $x_2 = \frac{-3+1}{-2} = 1$; $y_2 = \frac{-3}{1} = -3$; $m_2 = \frac{3}{(1)^2} = 3$

$\therefore$ Point of tangency: $Q_2(1, -3)$ Tangent line: $y - (-3) = 3[x - (1)]$ or $y = 3x - 6$

4. The slope of the line segment passing through the given point $P\left(\frac{-3}{5}, 5\right)$ and the point of tangency $Q(x, y)$ is given by $m = \frac{y-(5)}{x - \left(\frac{-3}{5}\right)}$ (1) where $y = \frac{-4}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \frac{4}{x^2}$ (3)

Let use (1) and (2) and (3): $\frac{\frac{-4}{x} - (5)}{x - \left(\frac{-3}{5}\right)} = \frac{4}{x^2}$ (4)

Let cross-multiply (4): $-4x - (5)x^2 = -4\left(\frac{-3}{5}\right) - (-4)x$ and finally: $5x^2 + (8)x + \frac{12}{5} = 0$ (5)

Use quadratic formula to solve (5): $x = \frac{-8 \pm \sqrt{(-8)^2 - 4(5)\left(\frac{12}{5}\right)}}{2(5)} = \frac{-4 \pm 2}{5}$

Solution 1: $x_1 = \frac{-4-2}{5} = \frac{-6}{5}$; $y_1 = \frac{-4}{\frac{-6}{5}} = \frac{10}{3}$; $m_1 = \frac{4}{\left(\frac{-6}{5}\right)^2} = \frac{25}{9}$

$\therefore$ Point of tangency: $Q_1\left(\frac{-6}{5}, \frac{10}{3}\right)$ Tangent line: $y - \left(\frac{10}{3}\right) = \frac{25}{9}\left[x - \left(\frac{-6}{5}\right)\right]$ or $y = \frac{25}{9}x + \frac{20}{3}$

Solution 2: $x_2 = \frac{-4+2}{5} = \frac{-2}{5}$; $y_2 = \frac{-4}{\frac{-2}{5}} = 10$; $m_2 = \frac{4}{\left(\frac{-2}{5}\right)^2} = 25$

$\therefore$ Point of tangency: $Q_2\left(\frac{-2}{5}, 10\right)$ Tangent line: $y - (10) = 25\left[x - \left(\frac{-2}{5}\right)\right]$ or $y = 25x + 20$

5. The slope of the line segment passing through the given point $P(-3, -1)$ and the point of tangency $Q(x, y)$ is given by $m = \frac{y - (-1)}{x - (-3)}$ (1) where $y = \frac{-1}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \frac{1}{x^2}$ (3)

Let use (1) and (2) and (3): $\frac{\frac{-1}{x} - (-1)}{x - (-3)} = \frac{1}{x^2}$ (4)

Let cross-multiply (4): $-x - (-1)x^2 = -(-3) - (-1)x$ and finally: $-x^2 + (2)x + 3 = 0$ (5)

Use quadratic formula to solve (5): $x = \frac{-2 \pm \sqrt{(-2)^2 - 4(-1)(3)}}{2(-1)} = \frac{-1 \pm 2}{-1}$

Solution 1: $x_1 = \frac{-1-2}{-1} = 3$; $y_1 = \frac{-1}{3} = \frac{-1}{3}$; $m_1 = \frac{1}{(3)^2} = \frac{1}{9}$

$\therefore$ Point of tangency: $Q_1\left(3, \frac{-1}{3}\right)$ Tangent line: $y - \left(\frac{-1}{3}\right) = \frac{1}{9}[x - (3)]$ or $y = \frac{1}{9}x + \frac{-2}{3}$

Solution 2: $x_2 = \frac{-1+2}{-1} = -1$; $y_2 = \frac{-1}{-1} = 1$; $m_2 = \frac{1}{(-1)^2} = 1$

$\therefore$ Point of tangency: $Q_2(-1, 1)$ Tangent line: $y - (1) = 1[x - (-1)]$ or $y = 1x + 2$

6. The slope of the line segment passing through the given point $P\left(\frac{-5}{4}, -2\right)$ and the point of tangency $Q(x, y)$ is given by $m = \frac{y - (-2)}{x - \left(\frac{-5}{4}\right)}$ (1) where $y = \frac{-2}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \frac{2}{x^2}$ (3)

Let use (1) and (2) and (3): $\frac{\frac{-2}{x} - (-2)}{x - \left(\frac{-5}{4}\right)} = \frac{2}{x^2}$ (4)

Let cross-multiply (4): $-2x - (-2)x^2 = -2\left(\frac{-5}{4}\right) - (-2)x$ and finally: $-2x^2 + (4)x + \frac{5}{2} = 0$ (5)

Use quadratic formula to solve (5): $x = \frac{-4 \pm \sqrt{(-4)^2 - 4(-2)\left(\frac{5}{2}\right)}}{2(-2)} = \frac{-2 \pm 3}{-2}$

Solution 1: $x_1 = \frac{-2-3}{-2} = \frac{5}{2}$; $y_1 = \frac{-2}{\frac{5}{2}} = \frac{-4}{5}$; $m_1 = \frac{2}{\left(\frac{5}{2}\right)^2} = \frac{8}{25}$

$\therefore$ Point of tangency: $Q_1\left(\frac{5}{2}, \frac{-4}{5}\right)$ Tangent line: $y - \left(\frac{-4}{5}\right) = \frac{8}{25}\left[x - \left(\frac{5}{2}\right)\right]$ or $y = \frac{8}{25}x + \frac{-8}{5}$

Solution 2: $x_2 = \dfrac{-2+3}{-2} = \dfrac{-1}{2}$; $y_2 = \dfrac{-2}{\frac{-1}{2}} = 4$; $m_2 = \dfrac{2}{\left(\frac{-1}{2}\right)^2} = 8$

$\therefore$ Point of tangency: $Q_2\left(\dfrac{-1}{2}, 4\right)$ Tangent line: $y - (4) = 8\left[x - \left(\dfrac{-1}{2}\right)\right]$ or $y = 8x + 8$

7. The slope of the line segment passing through the given point $P\left(\dfrac{12}{5}, -2\right)$ and the point of tangency $Q(x, y)$ is given by $m = \dfrac{y - (-2)}{x - \left(\frac{12}{5}\right)}$ (1) where $y = \dfrac{-5}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \dfrac{5}{x^2}$ (3)

Let use (1) and (2) and (3): $\dfrac{\frac{-5}{x} - (-2)}{x - \left(\frac{12}{5}\right)} = \dfrac{5}{x^2}$ (4)

Let cross-multiply (4): $-5x - (-2)x^2 = -5\left(\dfrac{12}{5}\right) - (-5)x$ and finally: $-2x^2 + (10)x - 12 = 0$ (5)

Use quadratic formula to solve (5): $x = \dfrac{-10 \pm \sqrt{(-10)^2 - 4(-2)(-12)}}{2(-2)} = \dfrac{-5 \pm 1}{-2}$

Solution 1: $x_1 = \dfrac{-5-1}{-2} = 3$; $y_1 = \dfrac{-5}{3} = \dfrac{-5}{3}$; $m_1 = \dfrac{5}{(3)^2} = \dfrac{5}{9}$

$\therefore$ Point of tangency: $Q_1\left(3, \dfrac{-5}{3}\right)$ Tangent line: $y - \left(\dfrac{-5}{3}\right) = \dfrac{5}{9}[x - (3)]$ or $y = \dfrac{5}{9}x + \dfrac{-10}{3}$

Solution 2: $x_2 = \dfrac{-5+1}{-2} = 2$; $y_2 = \dfrac{-5}{2} = \dfrac{-5}{2}$; $m_2 = \dfrac{5}{(2)^2} = \dfrac{5}{4}$

$\therefore$ Point of tangency: $Q_2\left(2, \dfrac{-5}{2}\right)$ Tangent line: $y - \left(\dfrac{-5}{2}\right) = \dfrac{5}{4}[x - (2)]$ or $y = \dfrac{5}{4}x - 5$

8. The slope of the line segment passing through the given point $P\left(\dfrac{-3}{4}, 2\right)$ and the point of tangency $Q(x, y)$ is given by $m = \dfrac{y - (2)}{x - \left(\frac{-3}{4}\right)}$ (1) where $y = \dfrac{-2}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \dfrac{2}{x^2}$ (3)

Let use (1) and (2) and (3): $\dfrac{\frac{-2}{x} - (2)}{x - \left(\frac{-3}{4}\right)} = \dfrac{2}{x^2}$ (4)

Let cross-multiply (4): $-2x - (2)x^2 = -2\left(\dfrac{-3}{4}\right) - (-2)x$ and finally: $2x^2 + (4)x + \dfrac{3}{2} = 0$ (5)

Use quadratic formula to solve (5): $x = \dfrac{-4 \pm \sqrt{(-4)^2 - 4(2)\left(\frac{3}{2}\right)}}{2(2)} = \dfrac{-2 \pm 1}{2}$

Solution 1: $x_1 = \dfrac{-2-1}{2} = \dfrac{-3}{2}$; $y_1 = \dfrac{-2}{\frac{-3}{2}} = \dfrac{4}{3}$; $m_1 = \dfrac{2}{\left(\frac{-3}{2}\right)^2} = \dfrac{8}{9}$

$\therefore$ Point of tangency: $Q_1\left(\dfrac{-3}{2}, \dfrac{4}{3}\right)$ Tangent line: $y - \left(\dfrac{4}{3}\right) = \dfrac{8}{9}\left[x - \left(\dfrac{-3}{2}\right)\right]$ or $y = \dfrac{8}{9}x + \dfrac{8}{3}$

Solution 2: $x_2 = \dfrac{-2+1}{2} = \dfrac{-1}{2}$; $y_2 = \dfrac{-2}{\frac{-1}{2}} = 4$; $m_2 = \dfrac{2}{\left(\frac{-1}{2}\right)^2} = 8$

$\therefore$ Point of tangency: $Q_2\left(\dfrac{-1}{2}, 4\right)$ Tangent line: $y - (4) = 8\left[x - \left(\dfrac{-1}{2}\right)\right]$ or $y = 8x + 8$

9. The slope of the line segment passing through the given point $P\left(\dfrac{24}{25}, -5\right)$ and the point of tangency $Q(x, y)$ is given by $m = \dfrac{y-(-5)}{x - \left(\frac{24}{25}\right)}$ (1) where $y = \dfrac{-5}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \dfrac{5}{x^2}$ (3)

Let use (1) and (2) and (3): $\dfrac{\frac{-5}{x} - (-5)}{x - \left(\frac{24}{25}\right)} = \dfrac{5}{x^2}$ (4)

Let cross-multiply (4): $-5x - (-5)x^2 = -5\left(\dfrac{24}{25}\right) - (-5)x$ and finally: $-5x^2 + (10)x + \dfrac{-24}{5} = 0$ (5)

Use quadratic formula to solve (5): $x = \dfrac{-10 \pm \sqrt{(-10)^2 - 4(-5)\left(\frac{-24}{5}\right)}}{2(-5)} = \dfrac{-5 \pm 1}{-5}$

Solution 1: $x_1 = \dfrac{-5-1}{-5} = \dfrac{6}{5}$; $y_1 = \dfrac{-5}{\frac{6}{5}} = \dfrac{-25}{6}$; $m_1 = \dfrac{5}{\left(\frac{6}{5}\right)^2} = \dfrac{125}{36}$

$\therefore$ Point of tangency: $Q_1\left(\dfrac{6}{5}, \dfrac{-25}{6}\right)$ Tangent line: $y - \left(\dfrac{-25}{6}\right) = \dfrac{125}{36}\left[x - \left(\dfrac{6}{5}\right)\right]$ or $y = \dfrac{125}{36}x + \dfrac{-25}{3}$

Solution 2: $x_2 = \dfrac{-5+1}{-5} = \dfrac{4}{5}$; $y_2 = \dfrac{-5}{\frac{4}{5}} = \dfrac{-25}{4}$; $m_2 = \dfrac{5}{\left(\frac{4}{5}\right)^2} = \dfrac{125}{16}$

$\therefore$ Point of tangency: $Q_2\left(\dfrac{4}{5}, \dfrac{-25}{4}\right)$ Tangent line: $y - \left(\dfrac{-25}{4}\right) = \dfrac{125}{16}\left[x - \left(\dfrac{4}{5}\right)\right]$ or $y = \dfrac{125}{16}x + \dfrac{-25}{2}$

10. The slope of the line segment passing through the given point $P\left(\dfrac{-7}{6}, -2\right)$ and the point of tangency $Q(x, y)$ is given by $m = \dfrac{y-(-2)}{x - \left(\frac{-7}{6}\right)}$ (1) where $y = \dfrac{-3}{x}$ (2)

The slope of the tangent line at the point of tangency $Q(x, y)$ is given by the first derivative:

$m = f'(x) = \dfrac{3}{x^2}$ (3)

Let use (1) and (2) and (3): $\dfrac{\frac{-3}{x} - (-2)}{x - \left(\frac{-7}{6}\right)} = \dfrac{3}{x^2}$ (4)

Let cross-multiply (4): $-3x - (-2)x^2 = -3\left(\dfrac{-7}{6}\right) - (-3)x$ and finally: $-2x^2 + (6)x + \dfrac{7}{2} = 0$ (5)

Use quadratic formula to solve (5): $x = \dfrac{-6 \pm \sqrt{(-6)^2 - 4(-2)\left(\frac{7}{2}\right)}}{2(-2)} = \dfrac{-3 \pm 4}{-2}$

Solution 1: $x_1 = \frac{-3-4}{-2} = \frac{7}{2}$; $y_1 = \frac{-3}{\frac{7}{2}} = \frac{-6}{7}$; $m_1 = \frac{3}{\left(\frac{7}{2}\right)^2} = \frac{12}{49}$

$\therefore$ Point of tangency: $Q_1\left(\frac{7}{2}, \frac{-6}{7}\right)$ Tangent line: $y - \left(\frac{-6}{7}\right) = \frac{12}{49}\left[x - \left(\frac{7}{2}\right)\right]$ or $y = \frac{12}{49}x + \frac{-12}{7}$

Solution 2: $x_2 = \frac{-3+4}{-2} = \frac{-1}{2}$; $y_2 = \frac{-3}{\frac{-1}{2}} = 6$; $m_2 = \frac{3}{\left(\frac{-1}{2}\right)^2} = 12$

$\therefore$ Point of tangency: $Q_2\left(\frac{-1}{2}, 6\right)$ Tangent line: $y - (6) = 12\left[x - \left(\frac{-1}{2}\right)\right]$ or $y = 12x + 12$

