Supplement #9

Find the Equation of the Tangent Line to the Following Functions:

1. f(x) = x^2 @ x = –½
2. f(x) = x^3 @ x = –2
3. f(x) = $\sqrt{x}$ @ x = 9
4. f(x) = $\frac{1}{x}$ @ x = 1
5. f(x) = $\frac{1}{\sqrt{x}}$ @ x = 4
6. f(x) = $\frac{1}{x^2}$ @ x = 1
7. f(x) = $x^2 + 1$ @ x = 2
8. f(x) = $x^3 – 2x + 1$ @ x= 0
9. f(x) = $\frac{3}{x^3}$ @ x = 1
10. f(x) = $3x^3 – 5x^2 + x + 3$ @ x = 1

Answers

1. $\left(-\frac{1}{2}, \frac{1}{4}\right)$ m = –1 y = –x – $\frac{1}{4}$
2. (–2, –8) m = 12 y = 12x + 16
3. (9,3) m = $\frac{1}{6}$ $y = \frac{1}{6}x + \frac{3}{2}$
4. (1,1) m = –1 y = –x + 2
5. $\left(4, \frac{1}{2}\right)$ $m = -\frac{1}{16}$ $y = -\frac{1}{16}x + \frac{3}{4}$
6. (1,1) m = –2 y = –2x + 3
7. (2,5) m = 4 y = 4x – 3
8. (0,1) m = –2 y = –2x + 1
9. (1,3) m = –9 y = –9x + 12
10. (1,2) m = 0 y = 2