Average Rate of Change

Find the average rate of change on the given interval

$(-1,-3)$ $(3,13)$

$x=-1$ to $x=3$

1. $f(x) = 10x - 3$ on $[-2, 5]$

2. $f(x) = 2x^2 - 5$ on $[-1, 3]$

$f(1) = 2(1)^2 - 5$

$= 2(1) - 5$

$= -3$

$f(3) = 2(3)^2 - 5$

$2(9) - 5$

13

$\frac{13+3}{3+1} = \frac{16}{4} = 4$

3. $g(x) = \frac{1}{t-2}$ on $[-2, 5]$

$g(-2) = \frac{1}{-2-2} = -\frac{1}{4}$ $g(5) = \frac{1}{5-2} = \frac{1}{3}$

$(-2, -\frac{1}{4})$ $(5, \frac{1}{3})$

$\frac{\frac{1}{3}+\frac{1}{4}}{5+2} = \frac{\frac{7}{12}}{7} \cdot \frac{1}{7} = \frac{1}{12}$

4. $h(x) = 5x^3$ on $[-2, 4]$

5. $f(x) = 2x^2 - 5$ on $[-2, b]$

$f(-2) = 2(-2)^2 - 5$

$= 3$

$(-2, 3)$

$f(b) = 2b^2 - 5$

$(b, 2b^2 - 5)$

$\frac{2b^2-5-3}{b+2} = \frac{2b^2-8}{b+2}$

$\frac{2(b^2-4)}{b+2}$

$\frac{2(b+2)(b-2)}{b+2}$

$2(b-2)$

6. $g(b) = \frac{1}{t-5}$ on $[-2, b]$

$g(-2) = \frac{1}{-2-5}$

7. $f(x) = 2x^2 - 5$ on $[-3, -3 + h]$

8. $f(x) = 10x - 3$ on $[x, x + h]$