



Functions and Applications

Chapter 1: Introduction to the Quadratic Function

1.2 Comparing Rates of Change in Linear and Quadratic Functions



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Function Notation: Notation such as $f(x)$ is used to represent the value of the dependent variable (output) for a given variable of the dependent variable (input)

$f(x)$ is simply the more advanced way of writing a dependent variable, compared to writing 'y' as we did in the past.



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Old

$$y = 2x - 1$$

$$y = x^2 - 3$$

New

$$f(x) = 2x - 1$$

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

In this case, the function's name is 'f'
it's independent variable is 'x'

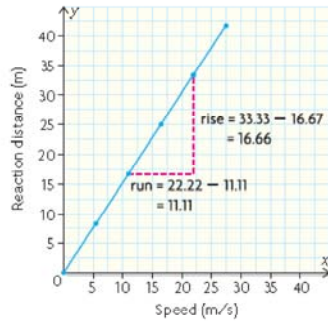


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Speed (m/s)	Reaction Distance (m)
0.00	0.00
5.56	8.33
11.11	16.67
16.67	25.00
22.22	33.33
27.78	41.67

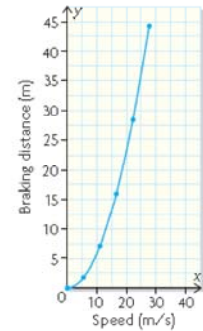


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Speed (m/s)	Braking Distance (m)
0.00	0.00
5.56	1.77
11.11	7.10
16.67	15.96
22.22	28.38
27.78	44.35



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Water is poured into a tank at a constant rate. The volume of water in the tank is measured every minute until the tank is full. The measurements are recorded in the table.

Time (min)	0	1	2	3	4	5	6	7
Volume (L)	0.0	1.3	2.6	3.9	5.2	6.5	7.8	9.1

- Use difference tables to determine whether the volume of water poured into the tank, $V(t)$, is a linear or quadratic function of time. Explain.
- State the domain and range using set notation.



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State the degree of each function, and identify which functions are linear and which are quadratic.

a) $k(x) = 3x(x + 1)$

b) $m(x) = (x + 2)^2 - x^2$



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Homework:

Page 24-25, Questions 1,3, 4, 6, 7, 8



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When finished,

Please begin reading pages 27-32