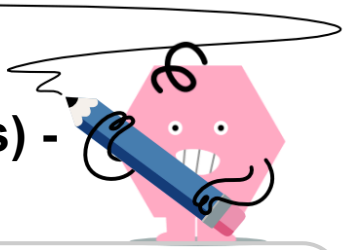
Name

Function Root Behaviour (Polynomials) - Function to Roots and Multiplicity



1 What are the roots and multiplicities of this function?

$$f(x) = (x-1)(x-3)^3$$

A	$x = -3$ (multiplicity 3) $x = -1$ (multiplicity 1)	B	$x = 1$ (multiplicity 1) $x = 2$ (multiplicity 3)
C	$x = 1$ (multiplicity 3) $x = 3$ (multiplicity 1)	D	$x = -3$ (multiplicity 1) $x = -1$ (multiplicity 3)
E	$x = 1$ (multiplicity 1) $x = 3$ (multiplicity 3)		

2 What are the roots and multiplicities of this function?

$$f(x) = (x+3)^3(x+1)^3$$

A	$x = 1$ (multiplicity 3) $x = 3$ (multiplicity 3)	B	$x = -3$ (multiplicity 3) $x = 1$ (multiplicity 3)
C	$x = -3$ (multiplicity 2) $x = -1$ (multiplicity 3)	D	$x = -3$ (multiplicity 3) $x = -1$ (multiplicity 3)
E	$x = -1$ (multiplicity 3) $x = 3$ (multiplicity 3)		

3 What are the roots and multiplicities of this function?

$$f(x) = x^4(x-2)$$

A	$x = 0$ (multiplicity 1) $x = 2$ (multiplicity 4)	B	$x = 0$ (multiplicity 4) $x = 3$ (multiplicity 1)
C	$x = 1$ (multiplicity 2) $x = 4$ (multiplicity 1)	D	$x = 0$ (multiplicity 4) $x = 2$ (multiplicity 1)
E	$x = -2$ (multiplicity 1) $x = 0$ (multiplicity 4)		

4 What are the roots and multiplicities of this function?

$$f(x) = (x+1)^3(x-1)^2$$

A	$x = 2$ (multiplicity 1) $x = 3$ (multiplicity 1)	B	$x = -1$ (multiplicity 2) $x = 1$ (multiplicity 3)
C	$x = -1$ (multiplicity 2) $x = 1$ (multiplicity 2)	D	$x = -1$ (multiplicity 4) $x = 1$ (multiplicity 2)
E	$x = -1$ (multiplicity 3) $x = 1$ (multiplicity 2)		

5 What are the roots and multiplicities of this function?

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

A	$x = -3$ (multiplicity 2) $x = -2$ (multiplicity 2)	B	$x = -3$ (multiplicity 2) $x = 2$ (multiplicity 1)
C	$x = -2$ (multiplicity 2) $x = 3$ (multiplicity 2)	D	$x = 2$ (multiplicity 2) $x = 3$ (multiplicity 2)
E	$x = -3$ (multiplicity 2) $x = 2$ (multiplicity 2)		

6 What are the roots and multiplicities of this function?

$$f(x) = (x+3)x^4$$

A	$x = 1$ (multiplicity 1) $x = 4$ (multiplicity 1)	B	$x = 0$ (multiplicity 4) $x = 3$ (multiplicity 1)
C	$x = -3$ (multiplicity 1) $x = 0$ (multiplicity 4)	D	$x = -2$ (multiplicity 1) $x = 0$ (multiplicity 4)
E	$x = -3$ (multiplicity 4) $x = 0$ (multiplicity 1)		

7 What are the roots and multiplicities of this function?

$$f(x) = (x+1)x$$

A	$x = -1$ (multiplicity 2) $x = 0$ (multiplicity 1)	B	$x = -1$ (multiplicity 1) $x = 0$ (multiplicity 2)
C	$x = -1$ (multiplicity 1) $x = 0$ (multiplicity 1)	D	$x = -1$ (multiplicity 1) $x = 1$ (multiplicity 1)
E	$x = 0$ (multiplicity 1) $x = 1$ (multiplicity 1)		

8 What are the roots and multiplicities of this function?

$$f(x) = (x+1)^3x^4$$

A	$x = -1$ (multiplicity 3) $x = 0$ (multiplicity 4)	B	$x = -1$ (multiplicity 3) $x = 1$ (multiplicity 4)
C	$x = 0$ (multiplicity 4) $x = 1$ (multiplicity 3)	D	$x = 3$ (multiplicity 1) $x = 4$ (multiplicity 1)
E	$x = -1$ (multiplicity 4) $x = 0$ (multiplicity 3)		