

9. [7 points]

a. [3 points] The table shows some of the values of a linear function $g(x)$

x	-2	1	5
$g(x)$	-1.2	2.7	A

What is the value of A ? Show all your work.

Solution: The slope of $g(x)$ is $m = \frac{2.7 - (-1.2)}{1 - (-2)} = \frac{3.9}{3} = 1.3$.

The slope point formula yields $g(x) - A = 1.3(x - 5)$.

Using the point $(1, 2.7)$ we get $2.7 - A = 1.3(1 - 5)$, which yields $A = 7.9$.

b. [4 points] The table shows some of the values of a quadratic function $q(x)$

x	-1	0	3	4
$q(x)$	0	6	0	-10

Find a formula for $q(x)$. Show all your work.

Solution: From the table we can see that $x = -1$ and $x = 3$ are zeros of $q(x)$. Using the factored form formula for a quadratic, $q(x) = a(x + 1)(x - 3)$. To find a , we use the point $(x, q(x)) = (0, 6)$. Then $6 = a(0 + 1)(0 - 3)$, which yields $a = -2$.

Hence $q(x) = -2(x + 1)(x - 3)$.