

1.  $(p+q)^4 = 1p^4q^0 + 4p^3q^1 + 6p^2q^2 + 4p^1q^3 + 1p^0q^4$

2.  $(2x+3y)^3 = 1 \cdot (2x)^3(3y)^0 + 3(2x)^2(3y)^1 + 3(2x)^1(3y)^2 + 1(2x)^0(3y)^3$   
 $= 8x^3 + 36x^2y + 54xy^2 + 27y^3$

3.  $(x-y)^3 = (x+(-y))^3 = 1x^3(-y)^0 + 3x^2(-y)^1 + 3x(-y)^2 + 1x^0(-y)^3$   
 $= x^3 - 3x^2y + 3xy^2 - y^3$

4.  $y = f(x) = 3x + 4$

a)  $f(1) = 3 \cdot 1 + 4 = 3 + 4 = 7$

b)  $f(5) = 3 \cdot 5 + 4 = 15 + 4 = 19$

c)  $f(-2) = 3(-2) + 4 = -6 + 4 = -2$

d)  $f(0) = 3 \cdot 0 + 4 = 0 + 4 = 4$

5.  $y = g(x) = |x+2|$

NOTE:  $|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$

a)  $g(2) = |2+2| = |4| = 4$

b)  $g(-4) = |-4+2| = |-2| = 2$

c)  $g(10) = |10+2| = |12| = 12$

d)  $g(-2) = |-2+2| = |0| = 0$

6.  $y = p(x) = \sqrt{x-3}$

NOTE:  $\sqrt{\text{NEGATIVE NUMBER}}$

IS UNDEFINED FOR REAL NUMBERS

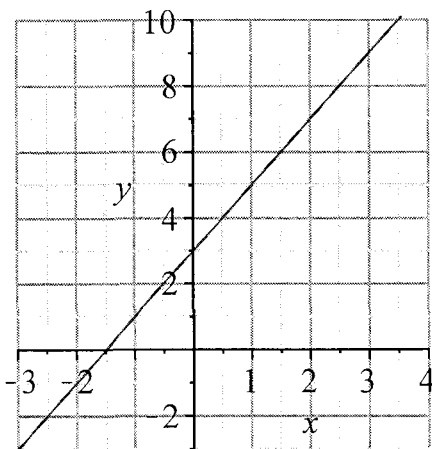
a)  $p(7) = \sqrt{7-3} = \sqrt{4} = 2$

b)  $p(19) = \sqrt{19-3} = \sqrt{16} = 4$

c)  $p(5) = \sqrt{5-3} = \sqrt{2} = 1.414$

d)  $p(0) = \sqrt{0-3} \rightarrow \text{UNDEFINED}$

7.



IF  $y = f(x) = 2x + 3$ , USE THE GRAPH TO FIND:

a)  $f(1) = 5$  AT  $x=1$ , GO UP TO THE FUNCTION AND READ THE  $y$ -VALUE

b)  $f(0) = 3$

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

d)  $f(3) = 9$