Algebra 2 Bellwork Monday, October 27, 2014

The following table represents data about population in Namibia. t=0 stands for the year 1950. Population in the table are in thousands.

year t	0	5	10	15	20	25	30	35	40	45	50
pop.	511	561	625	704	800	921	1 018	1 142	1 409	1 646	1 894

1. Find a quadratic regression equation. Round to the nearest hundredth as necessary.

2. Find the population to the nearest whole number in the following years:

a) 1940
b) 1997
d) 2005

2. For each quadratic find the equation of the Line of Symmetry, the coordinates of the Vertex, and the y-intercept.

a) $y = -4(x - 6)^2 + 11$

LOS:

Vertex:

Y-int:

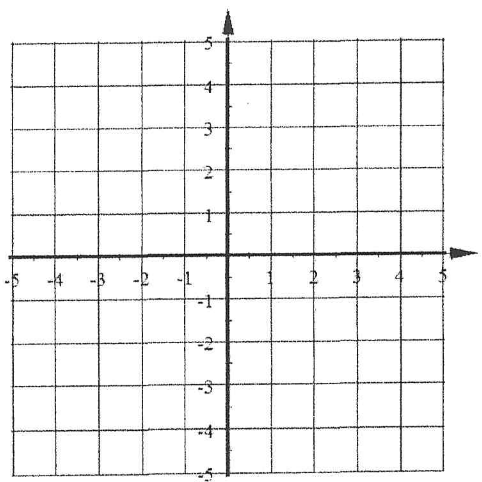
b) $y = 2x^2 + 20x - 13$

LOS:

Vertex:

Y-int:

3. Graph the function $y = 2x^2 + 8x + 3$ using 5 points.



Answers

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1. Find a quadratic regression equation. Round to the nearest hundredth as necessary. $P(t) = .50t^2 + 1.94t + 538.70$

2. Find the population to the nearest whole number in the following years:
a) 1940 $t=-10 \rightarrow$ 569,300
b) 1997 $t=47 \rightarrow$ 1,734,400
d) 2005
$t=55 \rightarrow$ 2,157,900

2. For each quadratic find the equation of the Line of Symmetry, the coordinates of the Vertex, and the y-intercept.

a) $y = -4(x - 6)^2 + 11$

LOS: $x=6$

Vertex: $(6, 11)$

Y-int: $-4(0-6)^2+11$
$-4(36)+11$
$-144+11$
$(0, -133)$

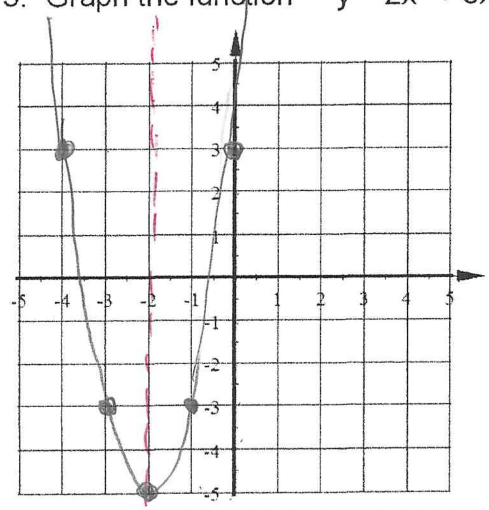
b) $y = 2x^2 + 20x - 13$

LOS: $x = \frac{-20}{2(2)} = \frac{-20}{4}$ $x=-5$

Vertex: $(-5, -63)$ $2(-5)^2+20(-5)$ -13

Y-int: $(0, -13)$

3. Graph the function $y = 2x^2 + 8x + 3$ using 5 points.



LOS: $x = \frac{-8}{2(2)} = \frac{-8}{4} = -2$

Vertex $(-2, -5)$

$2(-2)^2+8(-2)+3$
$8-16+3 = -8+3 = -5$

$1 \rightarrow 2$

$4 \rightarrow 8$