

## Practice for test 1 Worksheet

**Norway – not just for skiing:** With its **life expectancy** and **average** annual income, **Norway** tops a recent UN report ranking quality of life. The following equation models Norway's average life expectancy for a child born in any year from 1996 to the present.

$$Y = 0.17x + 81.49$$

$x = \text{year}$   
 $y = \text{life expectancy}$

where  $Y$  is the life expectancy and  $x$  is the year of the child's birth and  $x = 0$  corresponds to 2000.

(a) Graph the following equation in an appropriate viewing window to demonstrate the life expectancy of a child born in Norway from 1996 to the present and sketch your graph.

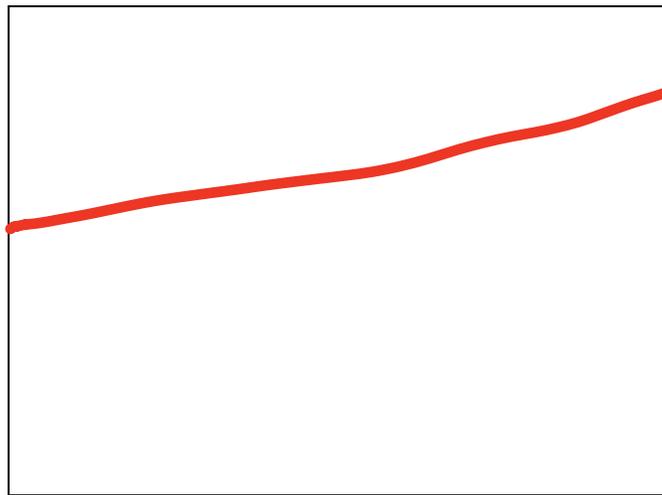
$X_{\min} = -4$

$X_{\max} = 14$

$Y_{\min} = 70$

$Y_{\max} = 90$

TABLE THINGS FIT



$x = 0 \rightarrow 2000$

(b) Determine the life expectancy of a child born in Norway in 1996 and in 2012.

1996 = 80.81

2012 = 83.53

(c) The life expectancy of a child born in the US over the same period is given by:

$$y = \frac{79.97 + 0.98t}{1 + 0.01t}$$

1. Which country has a higher life expectancy of a child born in 1996? In 2012?

1996 = NORWAY

2012 = NORWAY

2. Determine the point of intersection of the two models and interpret its meaning.

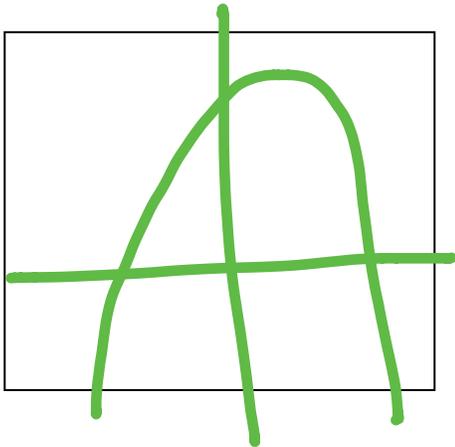
THERE IS NO POINT OF INTERSECTION.

The US life expectancy will NEVER exceed Norway's, according to the models.

Using the equation  $y = -x^2 + 2x + 27$



a) Graph in a viewing window which displays the intercepts and the vertex:



Xmin = -10

Xmax = 10

Ymin = -10

Ymax = 30  
(0, 27)

b) Find the y-intercept using your graphing calculator:

x-intercepts

(-4.3, 0)

c) Find the zeros using your graphing calculator:

d) Find the value for y if x = 6. 3

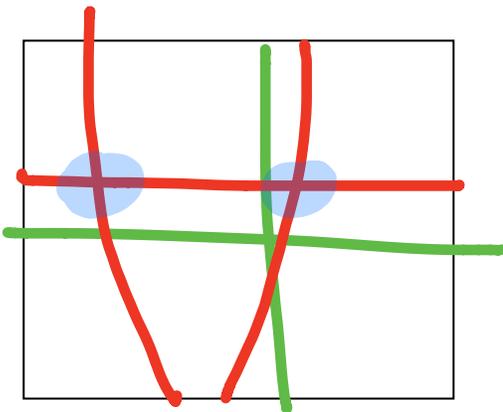
e) Find the value(s) for x if y = 21.75.

3.5, -1.5

f) Find the vertex of the parabola:

(1, 28)

Solve the equation graphically:  $2x^2 + 13x = 3$



Xmin = -10

Xmax = 10

Ymin = -10

Ymax = 10

Answer(s): 0.2, -6.7