

Before we begin, are there any questions from last day's work?

Now Read pp.209-211 (Ex. 1-3)

Then complete:

1) 2.6.3

2) pp.212-214 #8, 10, 14bcd, 16, 17(a-d)

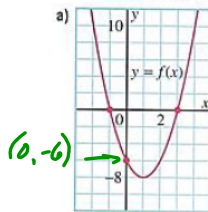
Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) solve polynomial equations graphically, both with **and without** technology.

p.212 #10

10. Determine the equation of each quadratic function.



(0, -6)

$$y = a(x+1)(x-3)$$

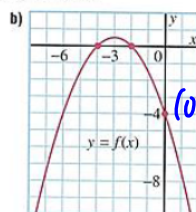
$$-6 = a(0+1)(0-3)$$

$$-6 = a(1)(-3)$$

$$\frac{-6}{-3} = \frac{-3a}{-3}$$

$$a = 2$$

$\therefore y = 2(x+1)(x-3)$ is the equation.

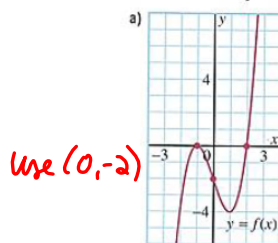


$$y = a(x+4)(x+2)$$

(0, -4)

p.214 #17

17. Determine an equation to represent the graph of each polynomial function.



use (0, -2)

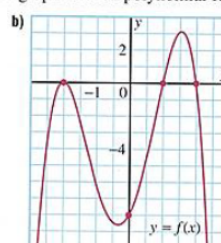
$$y = a(x+1)^2(x-2)$$

$$-2 = a(0+1)^2(0-2)$$

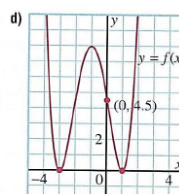
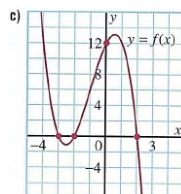
$$-2 = a(1)(-2)$$

$$-2 = -2a$$

$$a = 1 \therefore y = 1(x+1)^2(x-2)$$
 is the equation.



$$y = a(x+2)^2(x-1)(x-2)$$



$$y = a(x+3)^2(x-1)^2$$

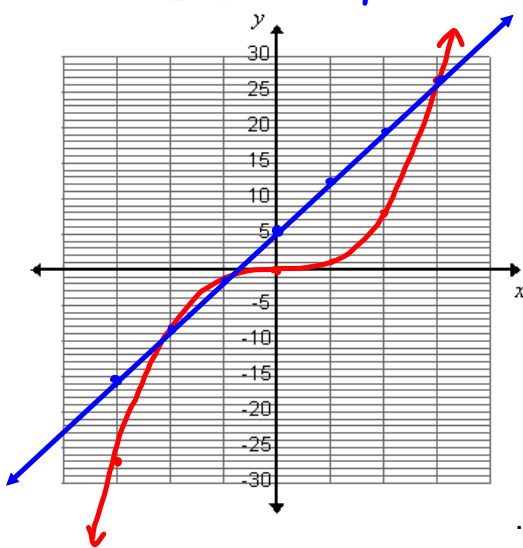
2.7.1: Solving Polynomial *Equations* Graphically
(using the corresponding polynomial function)

Date: Mar 6/17

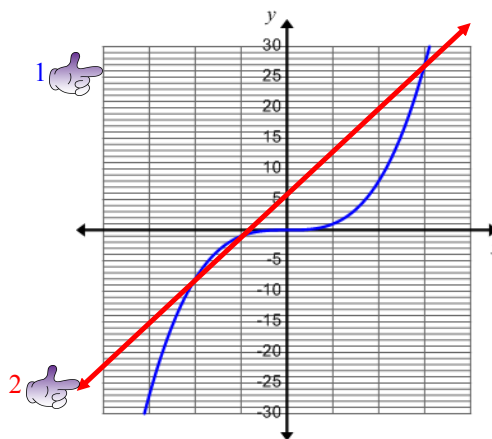
Recall: Solving an equation means determining the value(s) of the variable which make(s) the equation true. When solving graphically, the x values of the points of intersection are the roots (solutions) to the original problem.

Ex. 1 Given $x^3 = 7x + 6$. Solve graphically.

Method 1: Let $y_1 = x^3$ and $y_2 = 7x + 6$, and graph on the same grid.



Click for answer:



\therefore the solutions are $x = -2$, $x = -1$, and $x = 3$

Note: There is more than one choice when splitting the equation

We may have also chosen:

(Next page)

$$x^3 = 7x + 6$$

$$y_1 = x^3 + 7x = x(x^2 + 7)$$

$$y_2 = 6$$

$$y_1 = x^3 - 6, y_2 = 7x$$

Method 2:

Rearrange the equation to make one graph.

The zeros of the function are the roots (solutions) of the original equation.

$$x^3 = 7x + 6$$

$$x^3 - 7x - 6 = 0$$

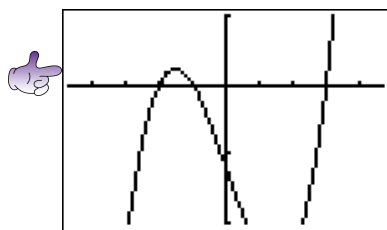
$$\therefore y = x^3 - 7x - 6$$

We'll use the TI-84's to graph our new function, then **TRACE** or **CALC** to find the zeros.

Use Window settings:

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WINDOW
Xmin=-4.7
Xmax=4.7
Xscl=1
Ymin=-10
Ymax=5
Yscl=5
Xres=1
  
```



\therefore the zeros of the function $y = x^3 - 7x - 6$ are:

$$x = -2, x = -1, \text{ and } x = 3$$

Today's homework:

pp.217-218 1, 2c, 3d, 4b, 6, 7

Simple Summary

