

Agenda/Objectives/Notes PAPPC Day 3 Sections 1.6 & 1.7

Starter Problems

1. Find the relationship between x and y such that (x, y) is equidistant from the points $(6, 5)$ and $((1, -8))$.
2. Find $\frac{f(x+h)-f(x)}{h}$, $h \neq 0$ for $x^3 + 3x$

Today's Agenda

1. Starter problem
2. Review assignment due
3. Today's objectives
4. Today's Assignment:
 - a. Read section 1.6 pages 66 – 70 and section 1.7 pages 74 – 78.
 - a. 71/32, 36, 42, 50, 62, 64, , 65, 67, 68, 72
 - b. 81/20, 24, 28, 36, 50, 67, 68

Today's Objectives: You will be able to

1. Identify and graph parent functions (Section 1.6 "A Library of Parent Functions").
2. Perform transformations for various functions (Section 1.7 "Transformation of Functions").

Notes/Examples

Graphing special functions

1. Graph the piece-wise function:
$$h(x) = \begin{cases} 4 - x^2, & x < -2 \\ 3 + x, & -2 \leq x < 0 \\ x^2 + 1, & x \geq 0 \end{cases}$$
2. Graph the step function: $g(x) = \llbracket x + 1 \rrbracket$

Transformation of functions

Vertical and Horizontal Shifts

- | | |
|--|---------------------|
| 1. Vertical shift c units <i>upward</i> (+) or <i>downward</i> (-) | $h(x) = f(x) \pm c$ |
| 2. Horizontal shift c units <i>right</i> (+) or <i>left</i> (-) | $h(x) = f(x \pm c)$ |
| 3. Reflection across the x -axis | $h(x) = -f(x)$ |
| 4. Reflection across the y -axis | $h(x) = f(-x)$ |