

**Pre-Calculus 12 Session 4**  
**Thursday, January 20, 2022**

1. Last Day's Homework: Section 1.1: pages 12 to 14, Practise 2, 3c,d, 4a,c, 5, 8, 11. Section 1.2: pages 28 to 30, Practise 3b, 4b, 5, 6, 7, 9, 12.

2. Section 1.3: Combining Transformations
- Does Order Matter?
  - Applying Multiple Transformations
  - Determining the Equation of a Transformed Graph of  $f(x)$  from a Graph

3. Section 1.4: Inverses of Functions and Relations
- Graphing Inverses
  - Writing the Equations of Inverses

→ 4. Section 3.1: Characteristics of Polynomial Functions and their Graphs

5. Section 3.2: The Remainder Theorem

6. Section 3.3: The Factor Theorem and Fun with Factoring!

**Homework:** This depends on how far we get today.

**Readings:** Section 3.1 (pages 106 to 113, Section 3.2 (pages 118 to 123), Section 3.3 (pages 126 to 133).

**Practice from Textbook to try:**

Section 1.3: pages 38 to 40, Practise 4, 5a, 6, 7a, b, c, d, 8, 9c, e, 10a, b.

Section 1.4: pages 51 to 54, Practise 1b, 2a, 3a.c, 5a, c, 8b, 12a.

Section 3.1: page 114, Practise 1, 2, 6, 7, 9.

Section 3.2: pages 124-125, Practise 1, 2, 3a, 4c, 5b, 6a, c, e, 7a, c, 8a,c, 10, 12.

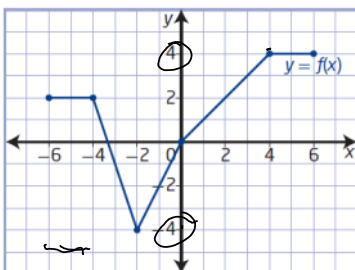
Section 3.3: pages 133-135, Practise 1, 2a, c, e, 3a, c, e, 4a, c, e, 5a, c, e, 6a, c, 7b, d, 9, 11, 14.

**Hand-in Assignments:** Finish the Chapter 1 Hand-in Assignment. It will likely be due on Tuesday, January 25. Begin working on the Chapter 3 Hand-in Assignment.

**The Chapter 1 Test will be on Thursday, January 27.**

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6. The graph of the function  $y = f(x)$  is vertically stretched about the  $x$ -axis by a factor of 2. *the end-points ↓*



- a) Determine the domain and range of the transformed function.

Answer

a)  $D: \{x \mid -6 \leq x \leq 6, x \in \mathbb{R}\}$   
 $R: \{y \mid -8 \leq y \leq 8, y \in \mathbb{R}\}$

*the range are doubled!*

b) The vertical stretch affects range by increasing it by a factor of 2. Domain is unaffected.

for  $f(x)$

- a) Determine the domain and range of the transformed function.
- b) Explain the effect that a vertical stretch has on the domain and range of a function.

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for  $f(x)$

$$D: \{x \mid -6 \leq x \leq 6, x \in \mathbb{R}\}$$

$$R: \{y \mid -4 \leq y \leq 4, y \in \mathbb{R}\}$$

transformed  $D: \{x \mid -6 \leq x \leq 6, x \in \mathbb{R}\}$

$$R: \{y \mid -8 \leq y \leq 8, y \in \mathbb{R}\}$$

## More About Transformations

## Inverses of Functions and Relations

### Inverse Operations

Two math operations that "undo" each other are called inverse operations.

The inverse of a relation is simply the relation we get when we switch around the  $x$  &  $y$  values.