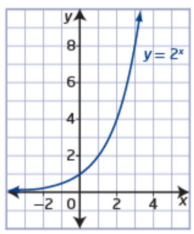
Pre-Calculus 30 **Chapter 7 Review**

Exponential Functions in the form $y = c^x$ have the following characteristics:

If c > 1

Increasing function
Domain: {x: x Є R}
Range: {y: y > 0, y Є R}
x-intercept: none
y-intercept: 1

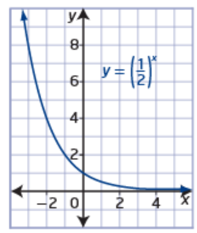
Horizontal asymptote: y = 0



If 0 < c < 1

Decreasing function
Domain: {x: x Є R}
Range: {y: y > 0, y Є R}
x-intercept: none
y-intercept: 1

Horizontal asymptote: y = 0



Writing exponential equations given a graph

Transformations

$y = c^x$ can be transformed to $y = a(c)^{b(x-h)} + k$

Mapping Notation: $(x, y) \rightarrow \left(\frac{1}{b}x + h,\ ay + k\right)$

- Vertical stretch by a factor of a ….if a < 0, then a reflection in the x-axis
- Horizontal stretch by a factor of $\frac{1}{b}$ ….if b < 0, then a reflection in the y-axis
- Horizontal shift of *h*
- Vertical shift of *k*. (Horizontal asymptote: $y = k$)

Real-World Applications (Exponential growth or decay)

- $P = a(c)^{bx}$

Solving Exponential Equations

- If necessary, rewrite equation so the bases are the same. Then equate exponents and solve

Assignment: Page 366 #1, 2, 3, 4ab, 5acd, 6, 7 (write equation only), 9, 10, 12ab
Page 368 #1 – 4, 8, 9….and word problems.