Pre-Calculus 30

Chapter 1 Review

y = f(x) + k	if k > 0, a vertical translation of "k" units ***up*** if k < 0, a vertical translation of "k" units ***down***
y = f(x – h)	if h > 0, a horizontal translation of "h" units ***to the right.*** if h < 0, a horizontal translation of "h" units ***to the left.***
y = -f(x)	a reflection in the x-axis
y = f(-x)	a reflection in the y-axis
y = af(x)	a vertical stretch about the x-axis by a factor of $\lvert a\rvert$
y = f(bx)	a horizontal stretch about the y-axis by a factor of $\frac{1}{\lvert b\rvert}$

y = af(b(x – h)) + k

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

Invariant points – points that remain the same after a transformation is applied.

Writing equations: Look at stretches (*a* and *b*) and reflections (-*a* and -*b*) first. Then look at translations/shifts (*h* and *k*).

Inverse of a relation:

- interchange the x-coordinates and y-coordinates
- the graph of the inverse is a reflection of the relation in the line y = x
- domain and range are reversed
- if the inverse of a function *f(x)* is a function, it is written $f^{-1}(x)$

Review Questions

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