

PreCalc 12 Final Review Chp 3

Note Title

2016-05-27

3.1-3.4) $y = a f(b(x-h)) + k$
 $y = a f(b(x-c)) + d$

variable doesn't matter
 it's position

\swarrow v scale/flip
 \swarrow h scale/flip
 \swarrow h shift
 \swarrow v shift.

$f(2x-4)$
 $f(2(x-2))$

not h
 h

Recall that the transforms also transforms domain & range.
 (not relevant if $\in \mathbb{R}$)

2 Ways to graph: graph pre-image then transform points or just transform the function then graph.
 (subst with brackets).

- $a < 0$ vert reflection/flip
- $|a| < 1$ vert compression (VC)
- $|a| > 1$ " stretch (VS)
- $b < 0$ horiz reflection/flip
- $|b| < 1$ " stretch (HS)
- $|b| > 1$ " compression (HC)

Reflection on x & y axis is also a 180° rotation & it's an odd function: $f(-x) = -f(x)$

Recall that order is important when graphing:

- horiz & vert scaling/reflecting
- then translating

Transforms: pre-image \rightarrow image: $\begin{cases} x' = x/b + h \\ y' = ay + k \end{cases}$

image \rightarrow pre-image: $\begin{cases} x = b(x' - h) \\ y = \frac{y' - k}{a} \end{cases}$ *

Read questions carefully to determine direction
 $p \rightarrow i$ or $i \rightarrow p$

Use equations * (rather than reasoning) to find fn when given key corresponding points.

$A(x, y)$ $A'(x', y')$
 $B(x, y)$ $B'(x', y')$

} plug into * to solve for a, b, h, k.

3.5) Inverses - Graphically, draw $y=x$ and reflect on $y=x$.
Optionally, swap x & y then plot. Tip, if you fold paper on $y=x$, then lines/curves should overlap completely (coincident).

Finding inverse functions/relations:

- swap all x 's & y 's

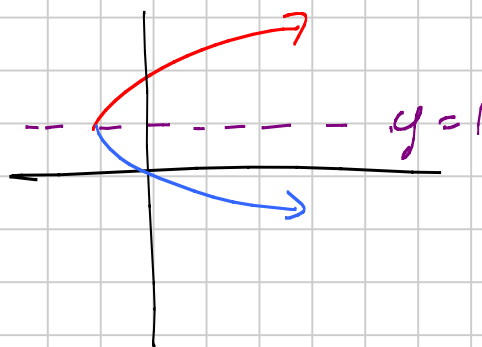
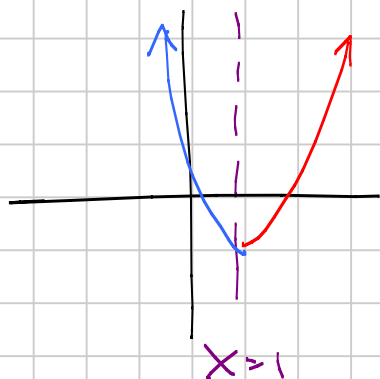
- then solve explicitly for y , ie, " $y = \dots$ "

implicit: eg) $4x+3y=7$.

Determining if fns are inverses of each other.

- solve inverse for one, and should match other.

Anything other than lines, will generally be an inverse relation, not function. We have to restrict domain to get functions



$$D: x < 1$$

$$D: x \geq 1$$