

MATHEMATICS 201-009-50

Precalculus

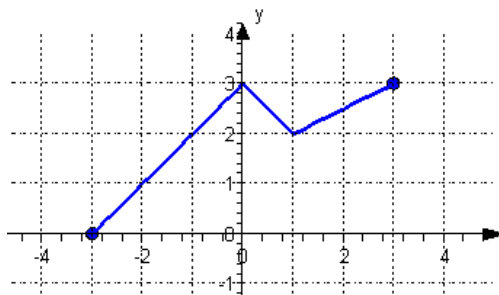
Martin Huard

Fall 2007

VIII – Transformation of Functions

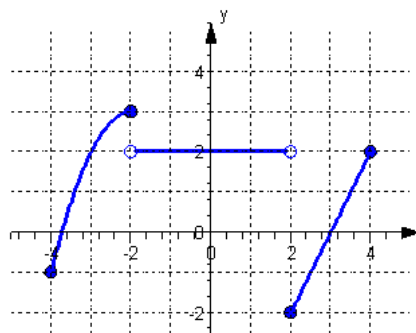
1. Consider the function f whose graph is given. Sketch the graph of each of the following functions.

- a) $f(x)+2$ b) $f(x-2)$
c) $f(x+1)-2$ d) $-f(x)$
e) $f(-x)$ f) $-f(x-2)+3$
g) $2f(x)$ h) $f(2x)$



2. Consider the function f whose graph is given. Sketch the graph of each of the following functions.

- a) $f(x)-1$ b) $f(x-1)$
c) $f(x+2)+1$ d) $-f(-x)$
e) $-f(x-2)+3$ f) $\frac{1}{2}f(x)$
g) $f(\frac{1}{2}x)$ h) $\frac{1}{2}f(\frac{1}{2}x)$
i) $\frac{1}{2}f(2x+4)-3$



3. Sketch the graphing of the following function, not by plotting points, but by starting with the graph of a standard function and applying the appropriate transformations.

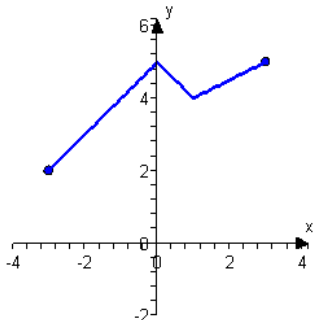
- a) $f(x)=(x+1)^2$ b) $f(x)=x^2-3$ c) $f(x)=-x^2+1$
d) $f(x)=-(x+2)^2-3$ e) $f(x)=2(x+1)^2+2$ f) $f(x)=-(x+1)^3$
g) $f(x)=(x+3)^3-2$ h) $f(x)=\sqrt{-x}+3$ i) $f(x)=-\sqrt{2x+4}$
j) $f(x)=-\sqrt{2-x}+1$ k) $f(x)=|x-2|-3$ l) $f(x)=|-x|+1$
m) $f(x)=|\frac{1}{2}x+1|$ n) $f(x)=1-\frac{1}{2}|x|$ o) $f(x)=2|x-2|+1$
p) $f(x)=-\frac{1}{x}$ q) $f(x)=\frac{1}{x+3}$ r) $f(x)=\frac{1}{x}+2$

4. Determine whether the function f is even, odd or neither.

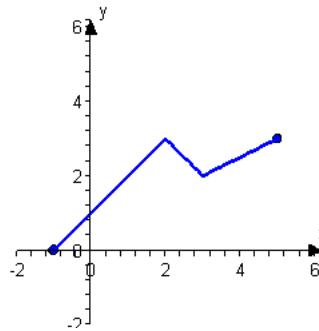
- a) $f(x)=x^4-2x^2+5$ b) $f(x)=x^7-3x^3+2x$ c) $f(x)=x^2+x+1$
d) $f(x)=x^{-2}$ e) $f(x)=x+\frac{1}{x}$ f) $f(x)=\sqrt[3]{x}$
g) $f(x)=x+\sqrt{x}$ h) $f(x)=|x|$

ANSWERS

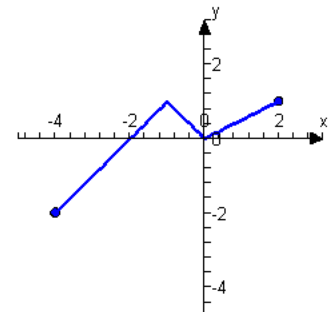
1. a)



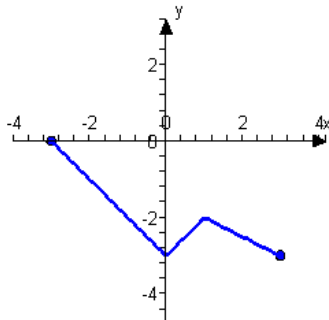
b)



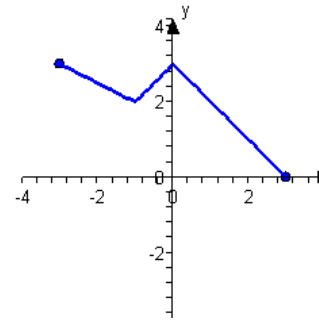
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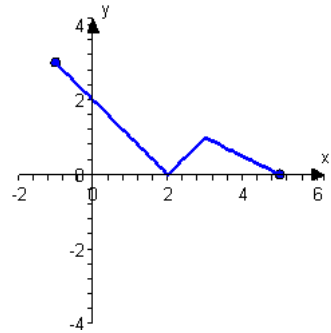
d)



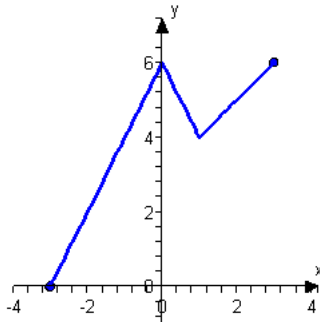
e)



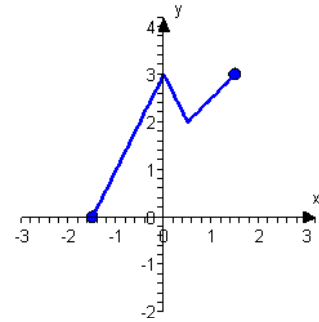
f)



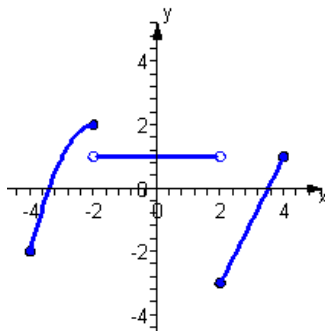
g)



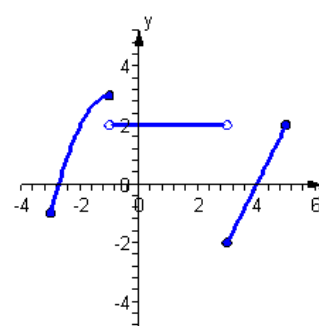
h)



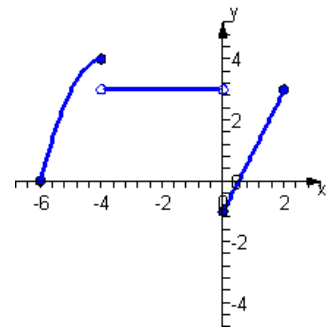
2. a)

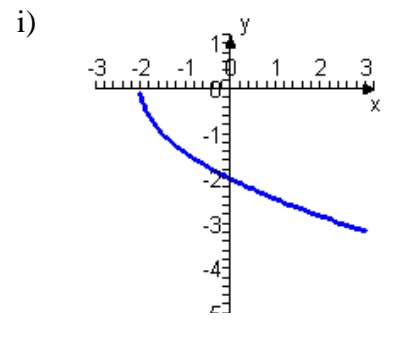
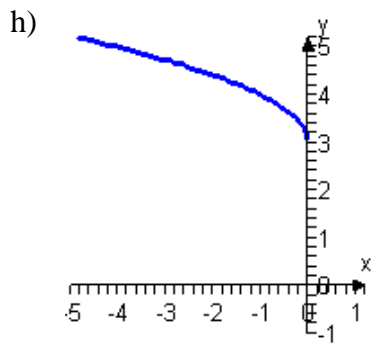
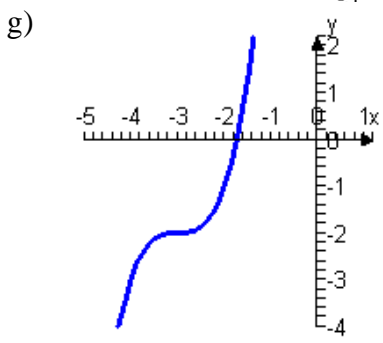
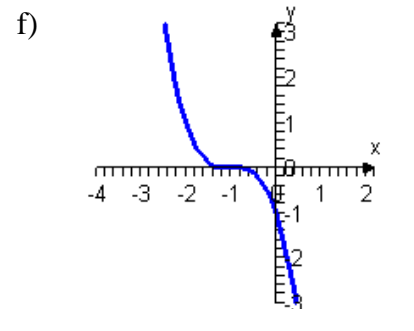
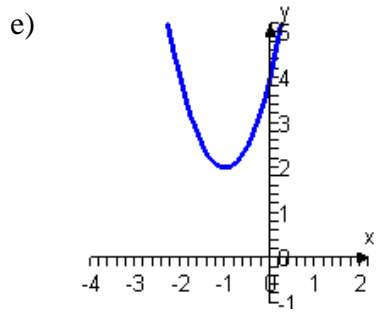
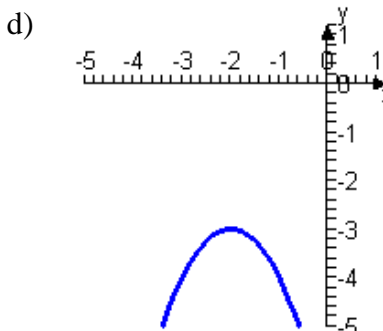
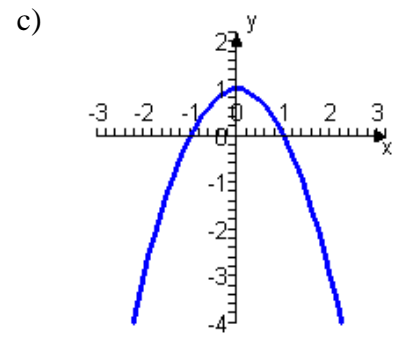
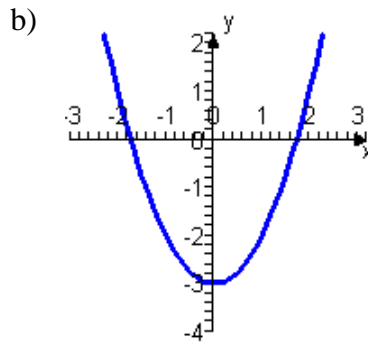
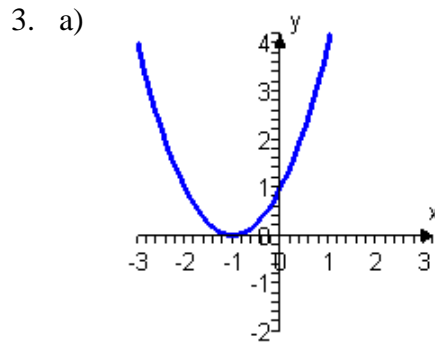
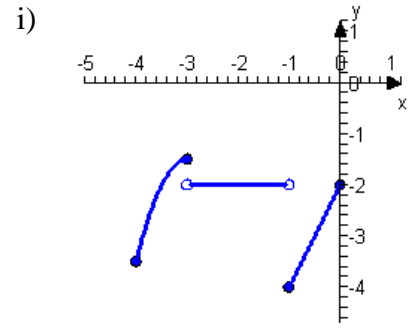
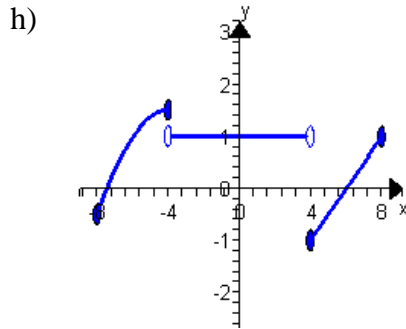
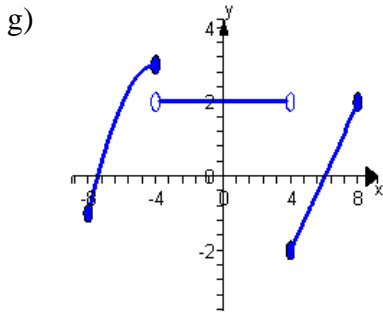
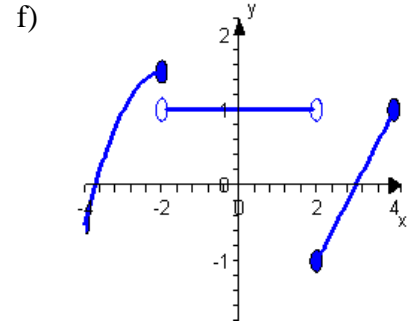
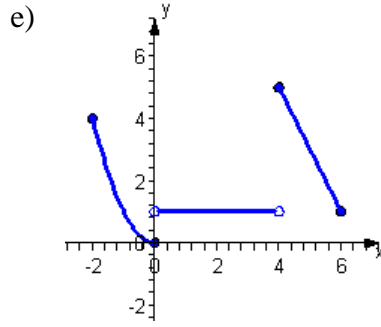
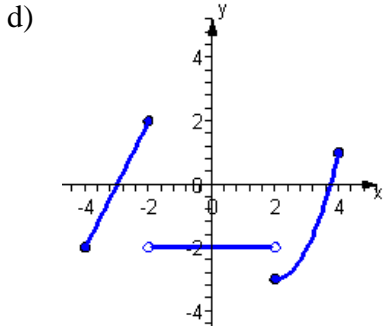


b)

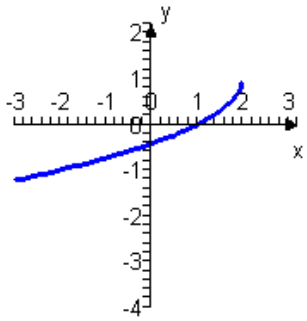


c)

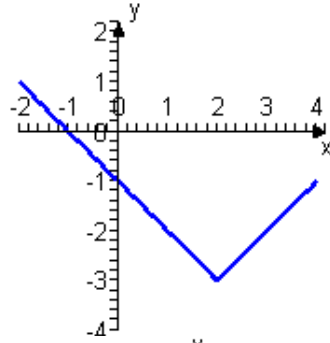




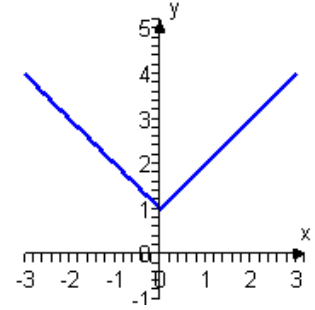
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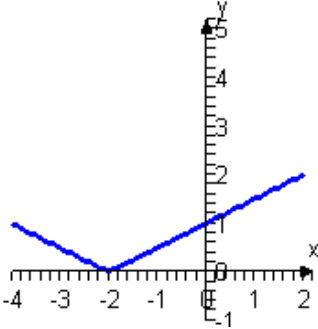
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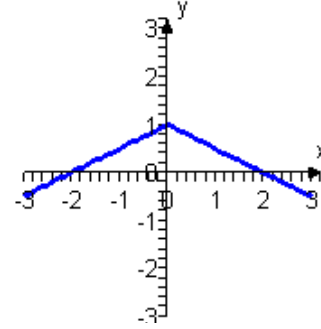
l)



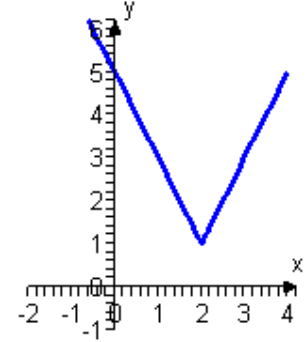
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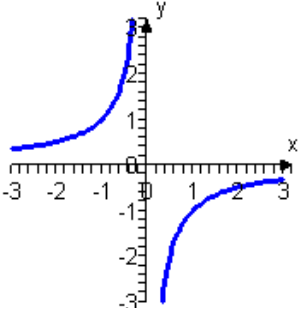
n)



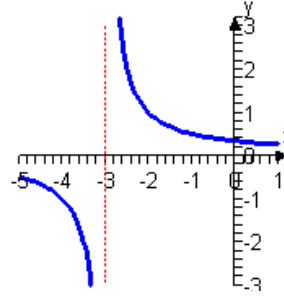
o)



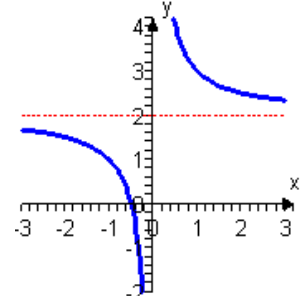
p)



q)



r)



4. a) Even
e) Odd

- b) Odd
f) Odd

- c) None
g) None

- d) Even
h) Even