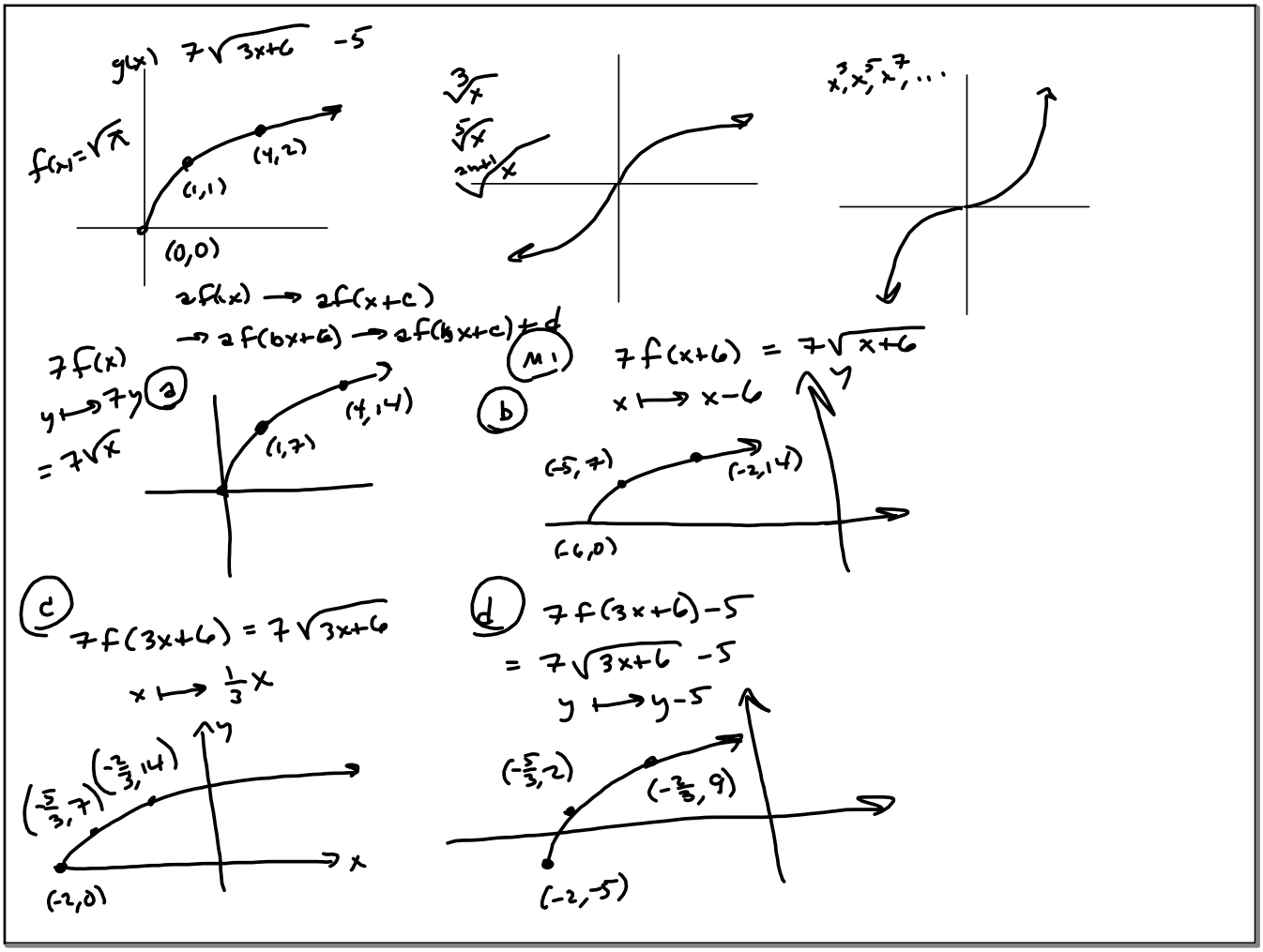
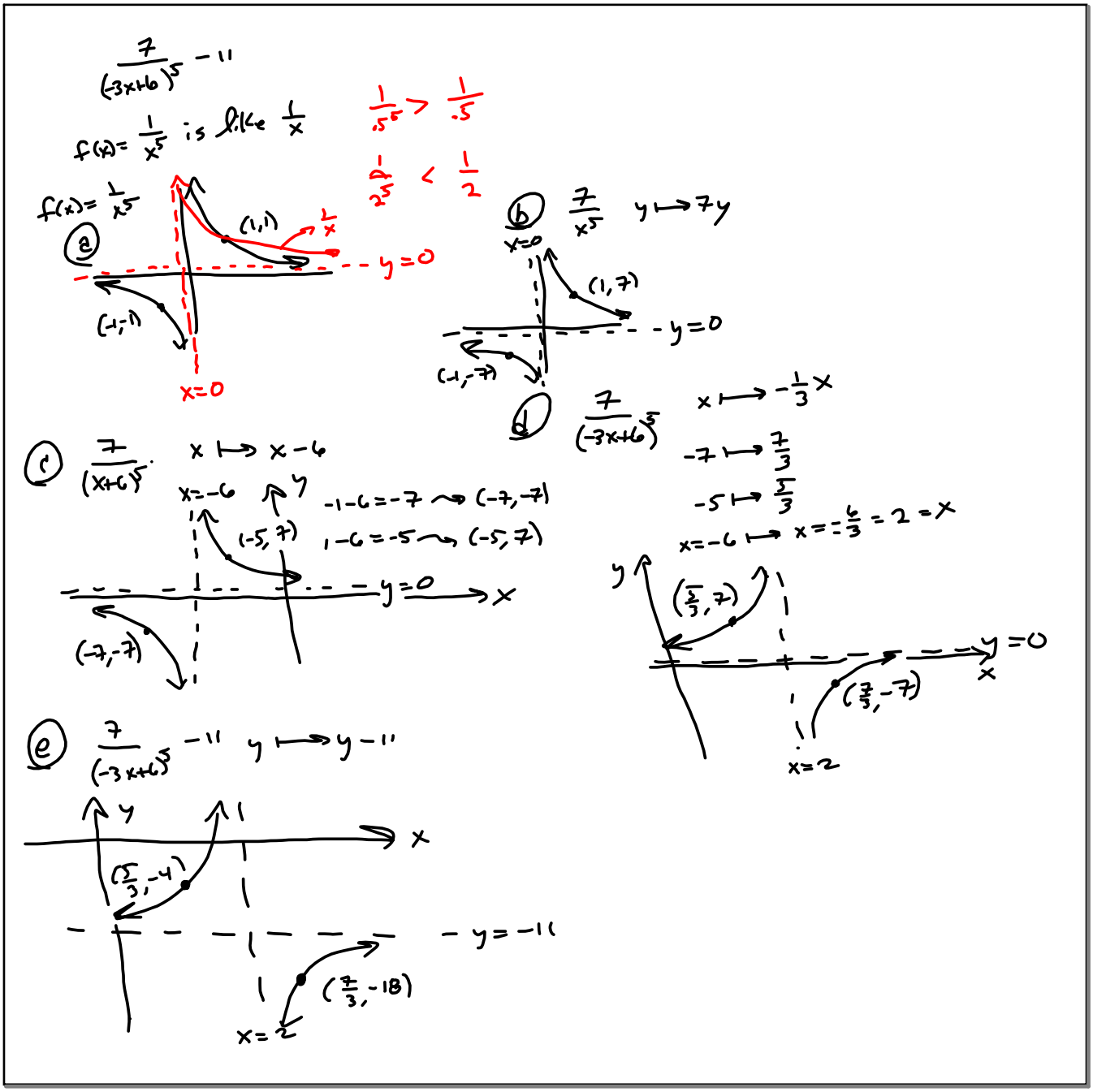
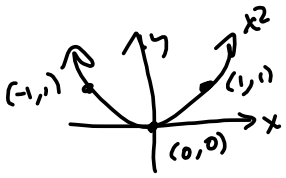
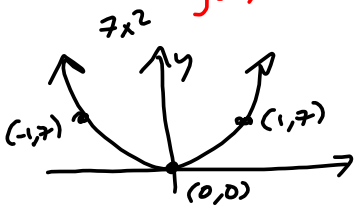

g(x) $7\sqrt{3x+6}-5$
$f(x)=\sqrt{x}$
(1,1)
(4,2)
(0,0)
$\sqrt[3]{x}$
$\sqrt[5]{x}$
$x^3, x^5, x^7, \ldots$
$2f(x) \to 2f(x+c)$
$\to 2f(bx+c) \to 2f(bx+c)+d$
$7f(x)$
$y \mapsto 7y$
$=7\sqrt{x}$
a
(1,7)
(4,14)
M1
$7f(x+6) = 7\sqrt{x+6}$
b
$x \mapsto x-6$
(-5,7)
(-2,14)
(-6,0)
c
$7f(3x+6) = 7\sqrt{3x+6}$
$x \mapsto \frac{1}{3}x$
$(-\frac{5}{3},7)$
$(-\frac{2}{3},14)$
(-2,0)
d
$7f(3x+6)-5$
$= 7\sqrt{3x+6}-5$
$y \mapsto y-5$
$(-\frac{5}{3},2)$
$(-\frac{2}{3},9)$
(-2,-5)


$\frac{7}{(-3x+6)^5} - 11$
$f(x) = \frac{1}{x^5}$ is like $\frac{1}{x}$
$\frac{1}{.5^5} > \frac{1}{.5}$
$\frac{1}{2^5} < \frac{1}{2}$
a
$f(x) = \frac{1}{x^5}$
(1,1)
$\frac{1}{x}$
$y=0$
(-1,-1)
$x=0$
b
$\frac{7}{x^5}$
$y \mapsto 7y$
$x=0$
(1,7)
$y=0$
(-1,-7)
d
$\frac{7}{(-3x+6)^5}$
$x \mapsto -\frac{1}{3}x$
$-7 \mapsto \frac{7}{3}$
$-5 \mapsto \frac{5}{3}$
$x=-6 \mapsto x = \frac{6}{3} = 2 = x$
$(\frac{5}{3}, 7)$
$y=0$
$(\frac{7}{3}, -7)$
$x=2$
c
$\frac{7}{(x+6)^5}$
$x \mapsto x-6$
$x=-6$
$-1-6=-7 \rightsquigarrow (-7,-7)$
$-1-6=-5 \rightsquigarrow (-5,7)$
(-5,7)
$y=0$
(-7,-7)
e
$\frac{7}{(-3x+6)^5} - 11$
$y \mapsto y-11$
$(\frac{5}{3}, -4)$
$y=-11$
$(\frac{7}{3}, -18)$
$x=2$

$g(x) = 7(x-5)^2 - 8$



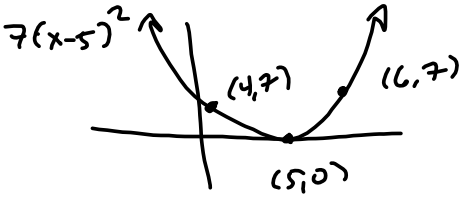
$g(0) = 7(25) - 8 > 0$

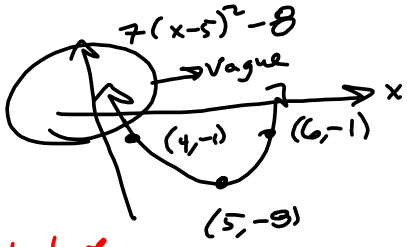


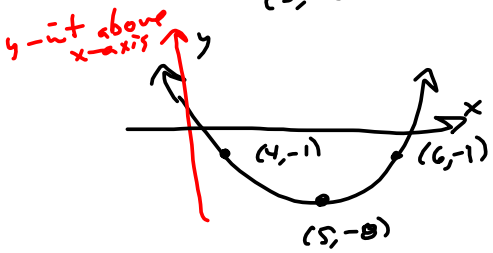
$7(x^2 - 10x + 25) - 8$

$= 7x^2 - 70x + 175 - 8$

$= 7x^2 - 7x + 167$







$g(x) = 7x^2 - 70x + 167$

$= 7(x^2 - 10x \quad) + 167$

$\frac{10}{2} = 5 \rightsquigarrow 5^2 = 25$

$= 7(x^2 - 10x + 5^2) + 167 - 7(25)$ scratch $167 - 175$

$= 7(x-5)^2 - 8$

$g(x) = 7x^2 - 70x + 167$

$\frac{g(x)}{7} = x^2 - 10x + \frac{167}{7}$

$= x^2 - 10x + 5^2 - 25 \cdot \frac{7}{7} + \frac{167}{7}$ scratch: $\frac{-175 + 167}{7}$

$= (x-5)^2 - \frac{8}{7} = \frac{g(x)}{7} \Rightarrow$

$g(x) = 7(x-5)^2 - 8$