1) Exponents and roots

A) $\frac{3^{x+1}}{3} = 3^x$

B) $(3^2)^x = 27$ $x = \frac{3}{2}$

C) $(2^x)^3 = 8\sqrt{2}$ $x = \frac{7}{6}$

D) $\frac{36}{6^{x-2}} = 6^{2-(x-2)}$

6^{4-x}

E) $x^{3/2} = 2\sqrt{2}$

$x = 2$

F) $(xy)^3(xy)^{-3} = 1$

1) Exponents and roots (cont)

G) $\sqrt{-1-b} = -2a$

Which of the following statements could be true?

I. $b > 0$ ✗

II. $b = 0$ ✗

III. $b < 0$ ✓

H) The arithmetic mean of $10, \sqrt{x}, \text{and } -1$ is 7.

What is $\frac{x}{16}$?

$\frac{10+\sqrt{x}-1}{3} = 7 \Rightarrow x = 144$

(9)

1) (even more) Exponents and roots

I) $\sqrt{x-8} = \sqrt{x} - 2$ $x=?$ 9

$x-8 = x - 4\sqrt{x} + 4$

$\sqrt{x} = 3$

J) if $a>0$ and $a^{\frac{b+3}{4}} = 8$ then $a^{\frac{b+3}{3}} = ?$ 16

$\left(a^{\frac{b+3}{4}}\right)^{\frac{4}{3}} = 8^{\frac{4}{3}}$

K) $7^{10-x} = 49$ $x-10=?$ -2

$10-x = 2$

1) (Wow! still more) Exponents and roots

L) $\left(q^{x/3}\right)^3 = \frac{1}{q}$ what is $-3x = ?$ 3

$q^x = q^{-1}$

M) if $f(x) = x^{-2}$, then when $x = 3$,

$(f(x))^{-1} = ?$

$\left(\frac{1}{9}\right)^{-1} = 9$

2) simplifying roots

A) $\sqrt{72} = 6\sqrt{2}$

B) $\sqrt{96} = 4\sqrt{6}$

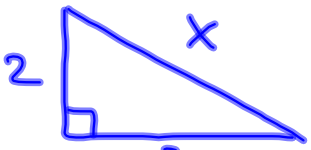
C) $\sqrt{56} = 2\sqrt{14}$

D) $\sqrt{8} = 2\sqrt{2}$

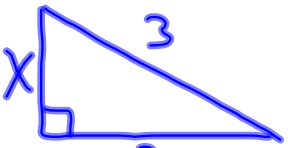
E) $\sqrt[3]{54} = 3\sqrt[3]{2}$

F) $\sqrt[4]{32} = 2\sqrt[4]{2}$

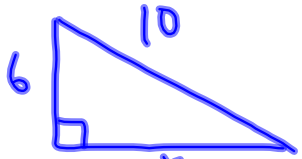
3) Right Triangles

A) 

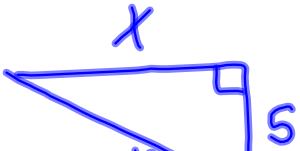
$x = \sqrt{13}$

C) 

$x = \sqrt{5}$

B) 

$x = 8$

D) 

$x = \sqrt{119}$

4) functions

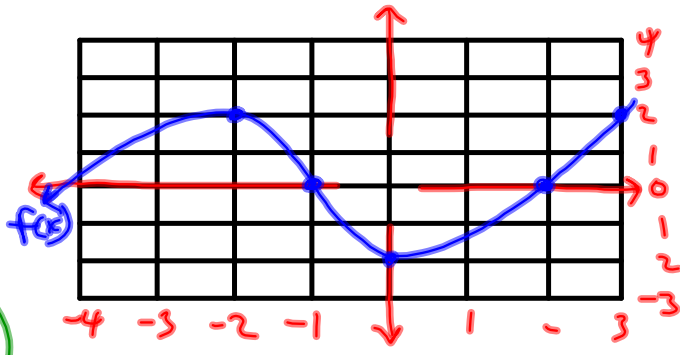
A) $f(x)=3x^2+2x-6$

$f(2)=$ 10 $f(-2)=$ 2

B) $f(x)=x/(2+x^2)$

$f(2)=$ $\frac{1}{3}$ $f(-2)=$ $-\frac{1}{3}$

5) More Functions



A) for any a>b, on what intervals must f(a)>f(b)?

$(-\infty, -2)$ and $(0, \infty)$

B) f(2)= 0

C) f(-2)= 2

D) f(0) = -2

E) f(x)=0 x= -1, 2, -4

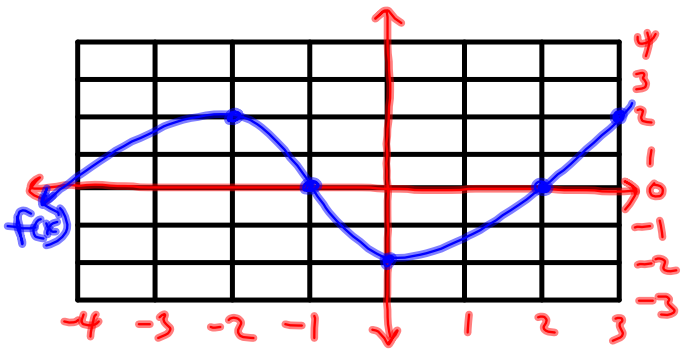
5F) same graph for f(x)

if $g(x) = f(2x+1)$ find $g(1)$ $= 2$

$g(1) = f(2(1)+1)$

$= f(3)$

$= 2$



6) Factoring

a) $(a^2 - b^2) =$ $(a+b)(a-b)$

b) $(16 - x^2) =$ $(4+x)(4-x)$

c) $(y^2 - 49) =$ $(y+7)(y-7)$

d) $(4x^2 - 9y^2) =$ $(2x+3y)(2x-3y)$

e) $(x^2 + 4y^2) =$ not factorable

f) $(x^2 + 7x + 10) =$ $(x+2)(x+5)$

g) $(x^2 - 9x + 18) =$ $(x-6)(x-3)$

h) $(x^2 - x - 12) =$ $(x-4)(x+3)$