4. $\dfrac{x-\frac{1}{y}}{\frac{x}{y}} \longleftrightarrow \left(\dfrac{xy-1}{y}\right) \cdot \dfrac{y}{x}$

$= \dfrac{xy-1}{x}$

5. $\dfrac{\frac{1}{(x-2)} - \frac{1}{(x+2)}}{}$

$\dfrac{(x+2)-(x-2)}{(x-2)(x+2)}$

$\dfrac{4}{x^2-4}$

10. $f(x) = x^2 + 2x + 5$ $\quad f(x+h)$

$f(2) = (2)^2 + 2(2) + 5$

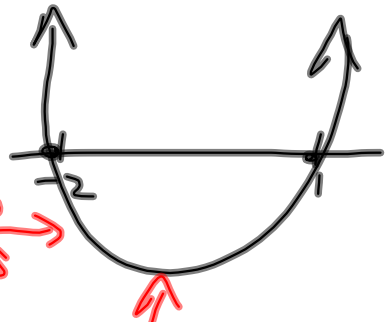
$f(?) = (?)^2 + 2(?) + 5$

$f(x+h) = (x+h)^2 + 2(x+h) + 5$

$= x^2 + 2xh + h^2 + 2x + 2h + 5$

11. $(x-1)(x+2) < 0$

Zeroes: $1, -2$



Below x-axis

Opens Up or Down??

$\{x \mid -2 < x < 1, x \in R\}$

$y = 3x^2 - x + 2$

open up

$y = -3x^2 + x - x$

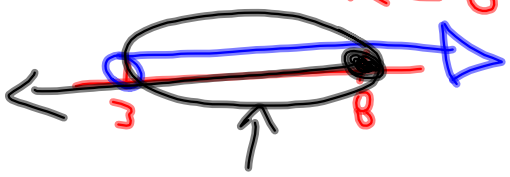
open Down

12. $|x-3| \leq 5$

Case 1: Between Bars Positive

If $x-3 \geq 0$ Then $x-3 \leq 5$

$x \geq 3$ $\quad x \leq 8$



$3 < x \leq 8$

$|x| = 7$

$|x| = 7$ Ignore Bars

$|7| = 7$

$7 = 7$

$|-7| = 7$

$-(-7) = 7$ Multiply By Neg

Case 2: Between Bars Negative

If $x-3 < 0$ Then $-(x-3) \leq 5$

$x < 3$

$-x+3 \leq 5$

$-x \leq 2$

$x \geq -2$

$-2 \leq x < 3$

Case 1

$-2 \leq x \leq 8$

13. $8^{-\frac{1}{3}} \cdot 3^0$

$\frac{1}{\sqrt[3]{8}} \cdot (1)$

$= \frac{1}{2}$

18. $\log_{10} 4 + \log_{10} 5$

$\log (4 \times 5)$

$\log 20$

21. $y - y_1 = m(x - x_1)$ ← Point-Slope

$m = \frac{4}{1} = 4$

$y - 2 = 4(x - 2)$

$y = 4x - 8 + 2$

$y = 4x - 6$

34. $y = -2(x^2 - 6x + 9) - 11 + 18$

$-2(x-3)^2 + 7$

$(3, 7)$

Solve the following...

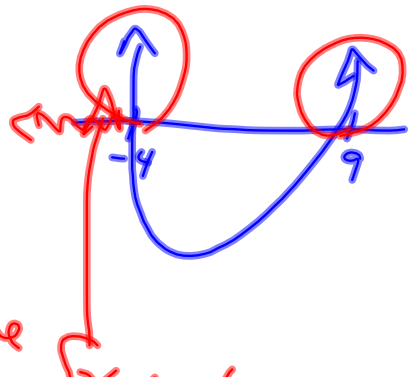
$$m^2 - 5m \geq 36$$

$M^2 - 5M - 36 > 0$

$(M-9)(M+4) > 0$

$M = 9, -4$

Above Axis



$\{x < -4 \text{ or } x > 9\}$

Locate the vertex of the following quadratic function...

$$f(x) = -2x^2 + 12x - 6$$

Exponents and Exponentials:

Evaluate the following...

$$-2^4+\left(\frac{1}{3}\right)^{-2}-64^{-\frac{2}{3}}+4w^0+(-3)^2+\frac{2^{-2}}{4}$$

$\frac{1}{64}$

$-16+9 \quad -\frac{1}{16}+4(1)+9+\frac{1}{4(2)^2}$

$=6$

Solve the following...

$$5^{2x}\bullet 25=\frac{1}{125^{x-1}}$$

Attachments

Sample Placement Test from UNB.pdf

Answers to Sample Placement Test.htm