Ditto 3.1

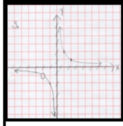
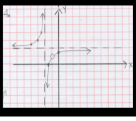
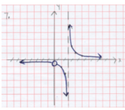
3. a. (-2,-1)
b. x=0
c. y=0
d. none
e. none
f. no

$y = \frac{2x^0}{x}$

4. a. (-1,1)
b. x=-2
c. y=2
d. $(\frac{3}{2}, 0)$
e. $(0, \frac{3}{2})$
f. no

6. a. $(0, -\frac{1}{2})$
b. x=2
c. y=0
d. none
e. none
f. no

$y = \frac{1x^0}{x-2}$

pg 302 40. $f(x) = x^4 - 6x^3 + 11x^2 - 10x + 2$

$2-\sqrt{3}$, $1+i$
$2+\sqrt{3}$, $1-i$

a : 1 a : 1
b : -4 b : -2
c : 4-3 = 1 c : $1-i^2$ = 2

$f(x) = (x^2-4x+1)(x^2-2x+2)$

Oct 31-11:53 AM

Part 1: Polynomial Inequalities

Step 1: Relate to zero.
Step 2: Create a related equation. RE. ________ = 0
Step 3: Factor the polynomial.
Step 4: Set each linear factor equal to zero to find the critical values.
Step 5: Set-up a number line and plot the critical values found in step 4 on the line.
Step 6: Use the inequality to determine whether or not the critical points should be included or not by using an open or closed circle.
Step 7: Test a point in each region. Use the inequality to determine whether or not the region(s) should be shaded or not shaded.
Step 8: Your answer must be in set-builder or interval notation.

Oct 3-10:12 AM

Solve.

1. $x^2 - 7x + 10 \leq 0$ closed, negative (shading)

R.E. $x^2-7x+10=0$
$(x-5)(x-2)=0$
$x-5=0$ $x-2=0$
$x=5$ $x=2$

0 2 3 5 7
(x-5) − − +
(x-2) − + +
⊕ ⊖ ⊕

$[2,5]$

2. $x^2 > 4$ open, pos

$x^2-4>0$
RE $x^2-4=0$
$(x-2)(x+2)=0$
$x-2=0$ $x+2=0$
$x=2$ $x=-2$

-3 -2 0 2 3
(x-2) − − +
(x+2) − + +
⊕ ⊖ ⊕

$(-\infty,-2) \cup (2,\infty)$

Oct 3-10:16 AM

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3. $x^2 - 12 < 4x$

4. $x^3 - x^2 - 9x \geq -9$ pos, closed

$x^3-x^2-9x+9 \geq 0$
RE $x^3-x^2-9x+9=0$
$x^2(x-1)-9(x-1)=0$
$(x-1)(x^2-9)=0$
$(x-1)(x-3)(x+3)=0$
$x-1=0$ $x-3=0$ $x+3=0$
$x=1$ $x=3$ $x=-3$

-4 -3 0 1 2 3 4
(x-1) − − + +
(x-3) − − − +
(x+3) − + + +
⊖ ⊕ ⊖ ⊕

$[-3,1] \cup [3,\infty)$

Oct 3-10:17 AM

Part 2: Rational Inequalities

Step 1: Relate to zero.
Step 2: Find the LCD & multiply by missing factors
Step 3: Write over one denominator.
Step 4: Combine like terms.
Tomorrow
Step 5: Set each numerator and denominator equal to zero.
Step 6: Put critical points on a number line. The critical point determined by your numerator will be either open or closed and is determined by your inequality symbol. Your denominator will always be an open circle regardless of the inequality.
Step 7: Test a point in each region. Use the inequality to determine whether or not the region(s) should be shaded or not shaded.
Step 8: Your answer must be in set-builder or interval notation.

Oct 3-10:17 AM

Solve.

5. $\frac{1}{x+4} \geq 0$ num closed, den open, pos

$x+4=0$
$x=-4$

-6 -4 6
x+4 − +

$(-4,\infty)$

6. $\frac{x+6}{x-1} < 0$ num open, den open, neg

$x+6=0$ $x-1=0$
$x=-6$ $x=1$

-12 -6 0 1 2
(x+6) − + +
(x-1) − − +
⊕ ⊖ ⊕

$(-6,1)$

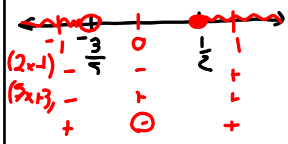
Oct 3-10:17 AM

7. $\frac{2x-1}{5x+3} \geq 0$

num closed
den open
pos

$2x-1:0 \quad 5x+3:0$

$x:1/2 \quad x:-3/5$



$(-\infty, -\frac{3}{5}) \cup [\frac{1}{2}, \infty)$

Oct 3-10:18 AM

HW 3-9

Pg 328 #15, 21, 29, 31, 44

Ditto 3.1 #5

Oct 3-10:19 AM