5. $f(x) = x^3 - x^2 + 2$

CONT: $(-\infty, \infty)$

6. $f(x) = \dfrac{(x-4)}{(x^2-6x+8)}$

PSD $x^2-6x+8=0$

$(x-4)(x-2)=0$

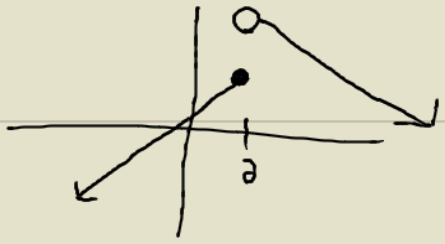
$x-4=0 \quad x-2=0$

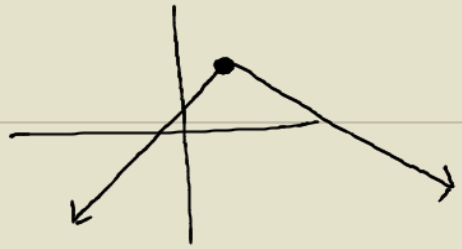
DISC: $x=4 \quad x=2$

CONT: $x \neq 4 \quad x \neq 2$

$(-\infty, 2) \cup (2,4) \cup (4, \infty)$

PIECEWISE FUNCTIONS





7. $f(x) = \begin{cases} 8x-1, & x \leq 2 \\ 3x+9, & x > 2 \end{cases}$

FINDING DISCONTINUITIES IN A PIECEWISE FUNCTION

① LOOK AT EACH PIECE FOR TROUBLE AREAS
NO DISC.

② PLUG IN CHANGEOVER VALUE INTO EACH PIECE AND SIMPLIFY
- IF THEY ARE EQUAL: NO DISC. AT CHANGEOVER VALUE
- IF THEY ARE NOT EQUAL: DISC. AT CHANGEOVER VALUE

$x=2$	$x=2$
$8x-1$	$3x+9$
$8(2)-1$	$3(2)+9$
$16-1$	$6+9$
15	15

EQUAL

SO NO DISC AT $x=2$

CONT: $(-\infty, \infty)$