

10.6

Solve.

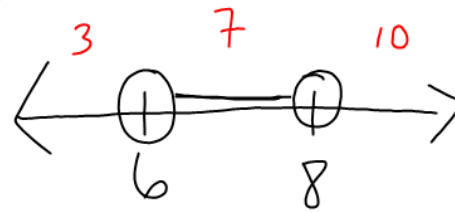
$$\textcircled{1} x^2 - 14x + 48 < 0$$

$$\textcircled{1} \text{Factor, } = 0$$

$$(x-8)(x-6) < 0$$

$$x-8=0 \quad x-6=0$$

$$x=8 \quad x=6$$



$$(6, 8)$$

$$\textcircled{2} \text{Pick test points}$$

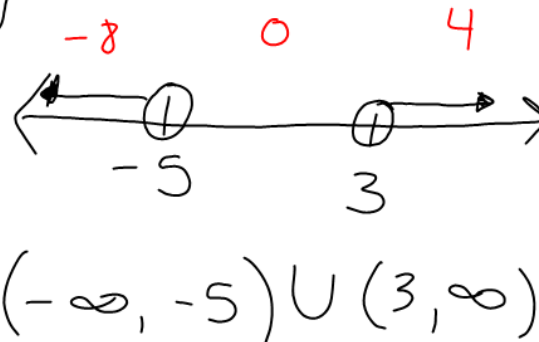
$$\textcircled{3} \text{Chart}$$

<u>TP</u>	<u>$x-8$</u>	<u>$x-6$</u>	<u>$(x-8)(x-6)$</u>
3	-	-	+
7	-	+	-
10	+	+	+

② $x^2 + 2x - 15 > 0$ → positive

① $(x+5)(x-3) > 0$

$x+5=0$ $x-3=0$
 $x=-5$ $x=3$



② Test Points

③ Chart

<u>TP</u>	<u>$x+5$</u>	<u>$x-3$</u>	<u>$(x+5)(x-3)$</u>
-8	-	-	+
0	+	-	-
4	+	+	+

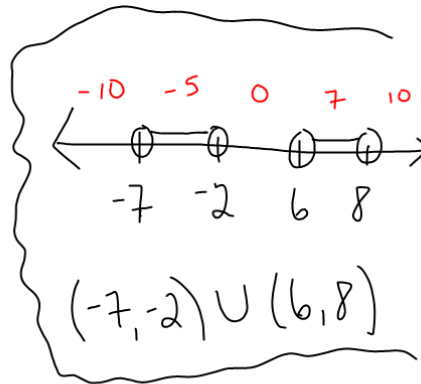
positive

$$\textcircled{3} \frac{x^2 - 4x - 12}{x^2 - x - 56} < 0$$

① Factor

$$\frac{(x-6)(x+2)}{(x-8)(x+7)} < 0$$

$$\begin{array}{l} x-6=0 \quad x+2=0 \quad x-8=0 \quad x+7=0 \\ x=6 \quad x=-2 \quad x=8 \quad x=-7 \end{array}$$



② Test Points

③ Chart

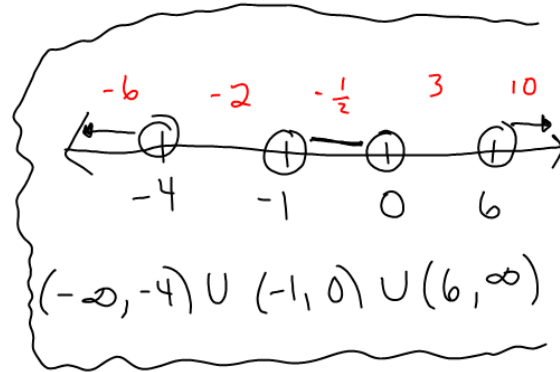
<u>TP</u>	<u>x-6</u>	<u>x+2</u>	<u>x-8</u>	<u>x+7</u>	$\frac{(x-6)(x+2)}{(x-8)(x+7)}$
-10	-	-	-	-	$\frac{+}{+} = +$
-5	-	-	-	+	$\frac{+}{-} = -$
0	-	+	-	+	$\frac{-}{-} = +$
7	+	+	-	+	$\frac{+}{-} = -$
10	+	+	+	+	$\frac{+}{+} = +$

④

$$\frac{x(x-6)}{(x+4)(x+1)} > 0$$

①

$$\begin{array}{l} x=0 \quad x-6=0 \quad x+4=0 \quad x+1=0 \\ x=6 \quad x=-4 \quad x=-1 \end{array}$$



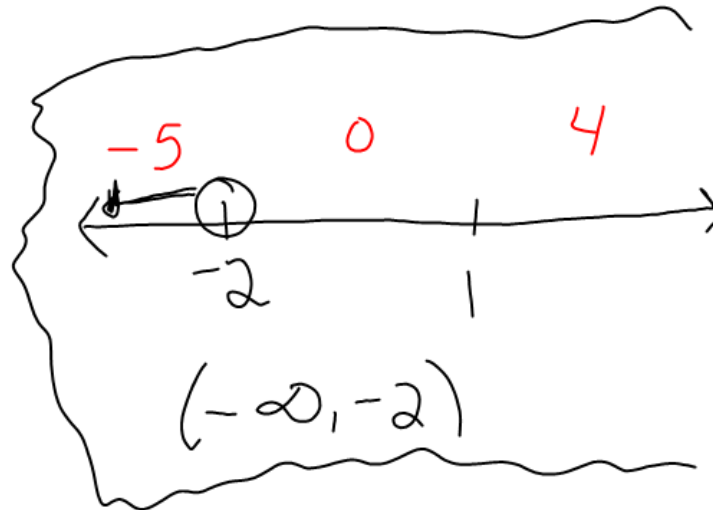
② Test Points

③ Chart

TP	x	$x-6$	$x+4$	$x+1$	positive $\frac{x(x-6)}{(x+4)(x+1)}$
-6	-	-	-	-	$\frac{+}{+} = +$
-2	-	-	+	-	$\frac{+}{-} = -$
$-\frac{1}{2}$	-	-	+	+	$\frac{+}{+} = +$
3	+	-	+	+	$\frac{-}{+} = -$
10	+	+	+	+	$\frac{+}{+} = +$

⑤
$$\frac{(x-1)(x-1)}{x+2} < 0$$

① $x-1=0$ $x-1=0$ $x+2=0$
 $x=1$ $x=1$ $x=-2$



② Test Points

③ Chart

<u>TP</u>	<u>$x-1$</u>	<u>$x-1$</u>	<u>$x+2$</u>	neg. $\frac{(x-1)(x-1)}{(x+2)}$	
-5	-	-	-	$\frac{+}{-} =$	-
0	-	-	+	$\frac{+}{+} =$	+
4	+	+	+	$\frac{+}{+} =$	+