

## Quadratic Inequalities Worksheet to Accompany Videotape #11

**Example:**  $x^2 - 2x > 3$

### Steps

1. Rewrite expression so the inequality is  $>0$  or  $<0$ .
2. Factor.
3. Find all values of  $x$  for which entire expression = 0.
4. Locate these numbers on the number line.
5. These numbers divide line into 3 parts.
6. Select a number from each part and examine signs of factors when  $x$  has chosen value.
7. These signs determine the sign of the whole expression.

### Example

1.  $x^2 - 2x - 3 > 0$

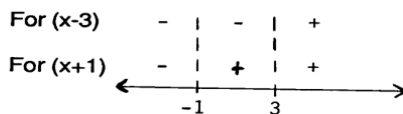
2.  $(x-3)(x+1) > 0$

3.  $x = 3, x = -1$



5.  $x < -1, -1 < x < 3, x > 3$

6. Take the part  $x < -1$ .  
Select any number in this part, say  $x = -3$ . Then for  $(x+1)$ , we have  $-3+1 = -2$  or a negative number. Therefore  $(x+1)$  is negative in this part. Continuing the procedure for each factor and for each part, we obtain:



7. For  $(x-3)(x+1)$  ⊕ | ⊖ | ⊕
- |             |   |  |   |  |   |
|-------------|---|--|---|--|---|
| For $(x-3)$ | - |  | - |  | + |
| For $(x+1)$ | - |  | + |  | + |
- 

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