

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

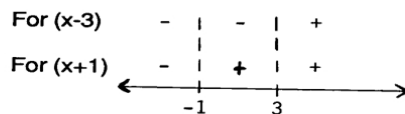
2. $(x-3)(x+1) > 0$

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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