Mathematics

Inequalities and Substitution 2

Downloadable Resource

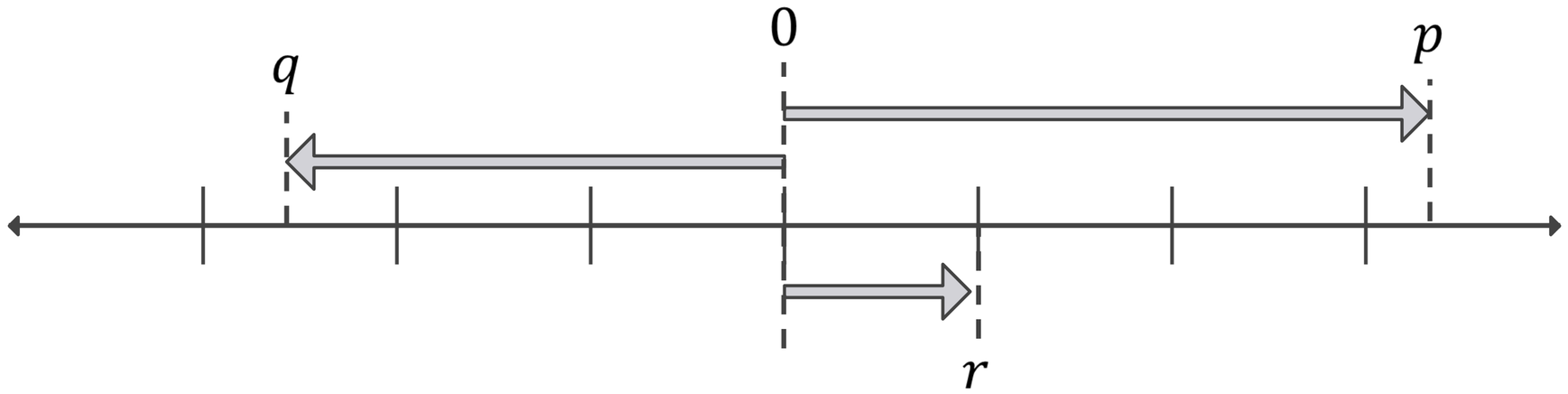
Mr Millar

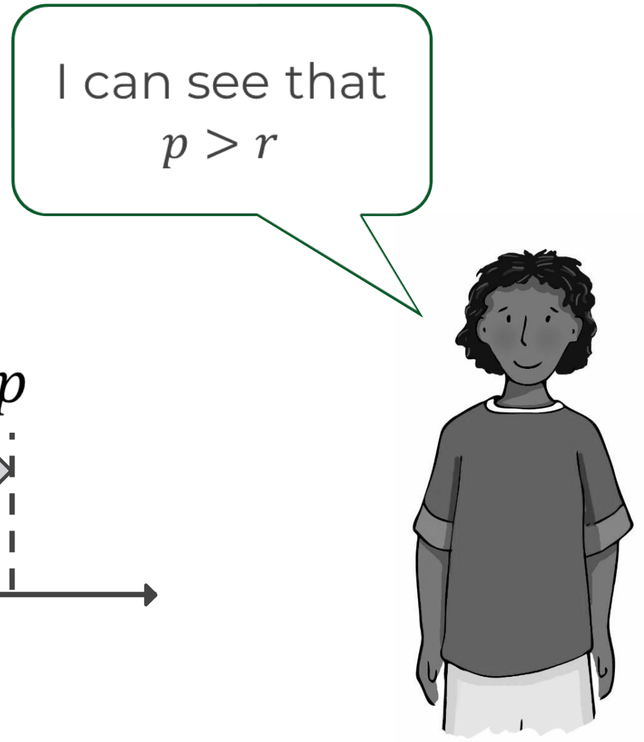
Try this

How many different inequality statements can you write about p, q and r?

Zaki has done an example.

Also consider negatives (what would –r look like?)





Independent task

1. Given that $a = -3$ which of the following inequalities are TRUE?

$a > -4$ $\quad$ $-a \leq -4$ $\quad$ $-a - 3 \geq 0$

2. Given that $p = -2$ and $q = 3$ which of the following inequalities are TRUE?

$p > q$ $\quad$ $-p \leq q$ $\quad$ $-q \geq -p$

3. Given that $p = 10$ and $q = -10$, fill in the gaps with a <, > or = sign

$p \quad q$ $\quad$ $p \quad -q$ $\quad$ $-p \quad -q$

Explore

If we know that $2a < b$, are the statements below always, sometimes or never true?

$a < \frac{b}{2}$

$-2b < a$

$-a > b$

$a = b$

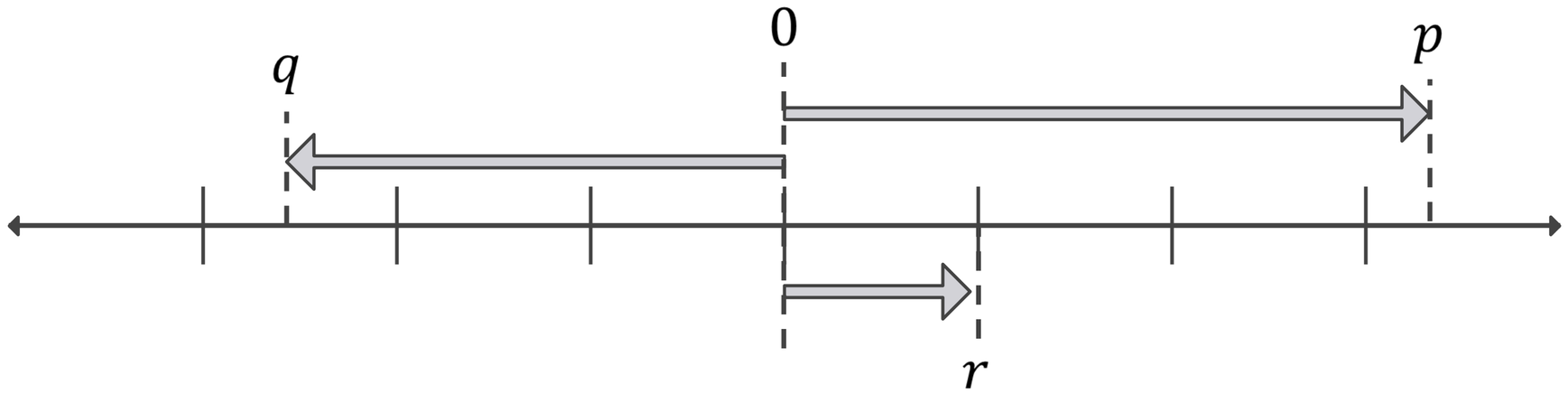
Answers

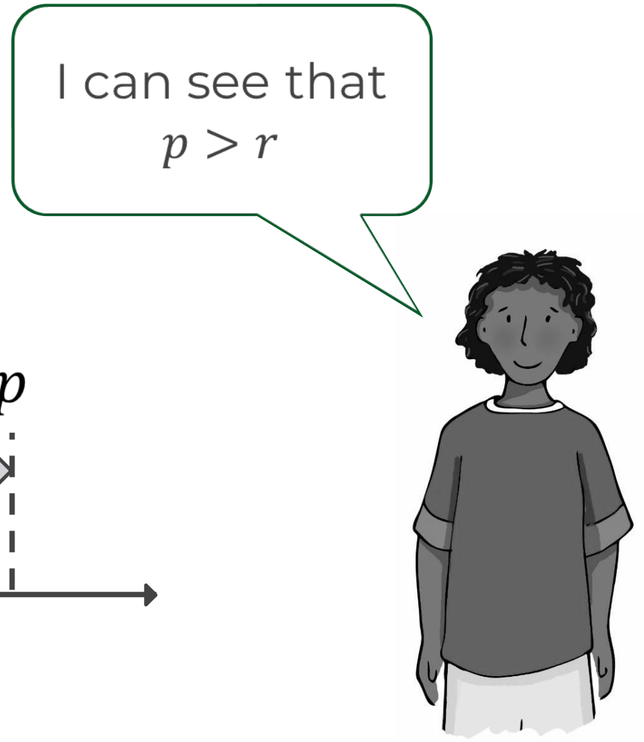
Try this

How many different inequality statements can you write about p, q and r?

Zaki has done an example.

Also consider negatives (what would –r look like?)





Many examples, eg r > q, -q > r, -p < q, etc

Independent task

1. Given that $a = -3$ which of the following inequalities are TRUE?

$a > -4$ T

$-a \leq -4$ F

$-a - 3 \geq 0$ T

2. Given that $p = -2$ and $q = 3$ which of the following inequalities are TRUE?

$p > q$ F

$-p \leq q$ T

$-q \geq -p$ F

3. Given that $p = 10$ and $q = -10$, fill in the gaps with a <, > or = sign

$p \; > \; q$

$p \; = \; -q$

$-p \; < \; -q$

Explore

If we know that $2a < b$, are the statements below always, sometimes or never true?

$$a < \frac{b}{2}$$

Always true

$$-2b < a$$

Sometimes true, eg:

True if a = 1, b = 3

False if a = -2, b = -3

$$-a > b$$

Sometimes true, eg:

True if a = -5, b = -4

False if a = 1, b = 3

$$a = b$$

Never true