Meet i

CN01-V1 · storyboard · CN01 Meet i. Read each picture with its sentences.

Picture 1

Work out $(3i)^2$.

$$(3i)^2 = 3^2 \cdot i^2$$ square the number and the i

$$= 9 \cdot (-1)$$ $i^2 = -1$

$$= \boxed{-9}$$ negative: $3i$ is imaginary

1. Work out 3 i, squared.
2. Square the 3, and square the i.
3. 3 squared is 9, and i squared is negative 1.
4. So 3 i, squared, is negative 9.
5. Its square is negative, so 3 i is an imaginary number.

Picture 2

Work out $(-9i)^2$.

$$(-9)^2 \cdot i^2 = 81 \cdot (-1)$$

$$= \boxed{-81}$$

6. Work out negative 9 i, squared.
7. Negative 9 squared is positive 81, and i squared is negative 1.
8. So the answer is negative 81.
9. A minus sign in front doesn't make the square positive.

Picture 3

Trap $(5i)^2$

$\times\ 25$

✓ $25i^2 = -25$

10. Watch for the trap: 5 i, squared, is not 25.
11. It is 25 times i squared, and i squared is negative 1, so it is negative 25.

Picture 4

Trap $(3i)^2$

$\times\ 3i^2 = -3$

✓ $9i^2 = -9$

12. Another trap: 3 i, squared, is not negative 3.
13. Square the 3 too: 9 i squared, which is negative 9.