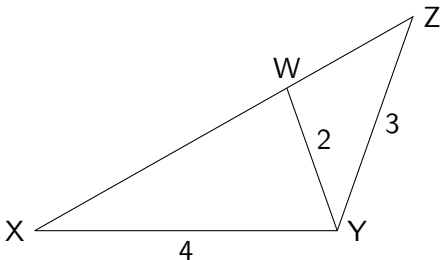


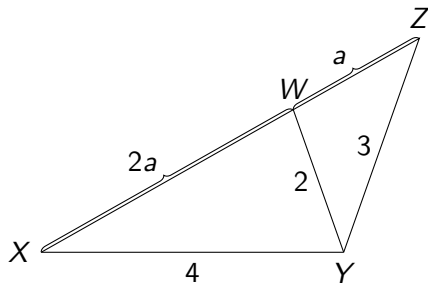
Identify the objective.

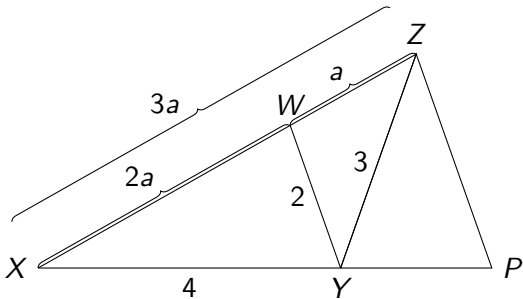
In $\triangle XYZ$, side XY has length 4 and side YZ has length 3. Point W lies on side XZ such that the length of segment YW is 2, and the length of segment XW is twice the length of segment WZ . What is the square of the length of side XZ ?

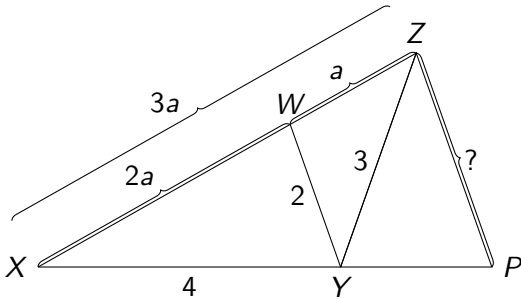


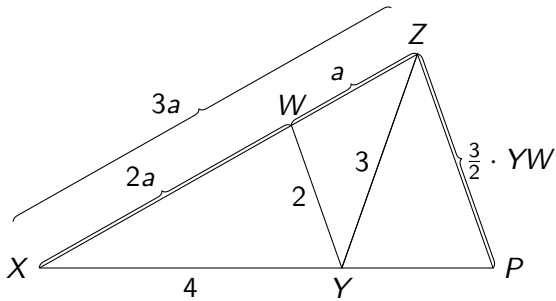


Compute XZ^2 .



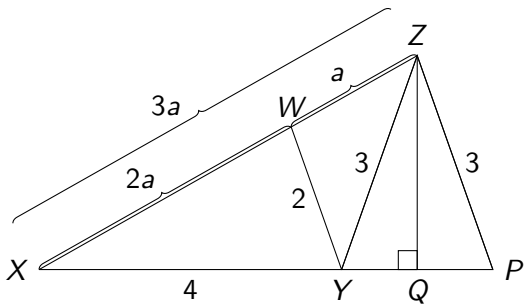
Compute XZ^2 .

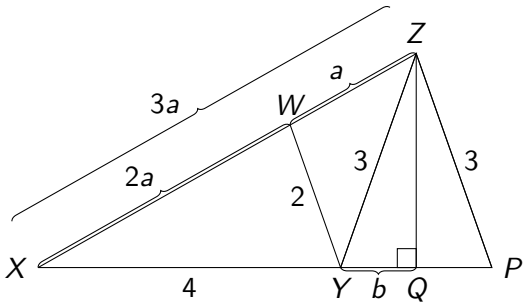
Compute XZ^2 .

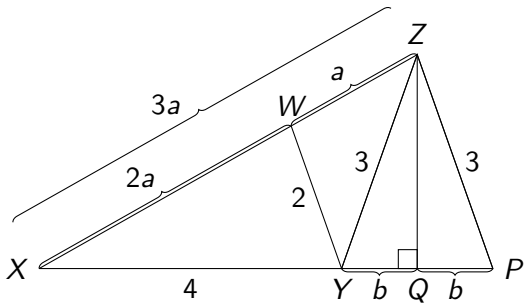
Compute XZ^2 .

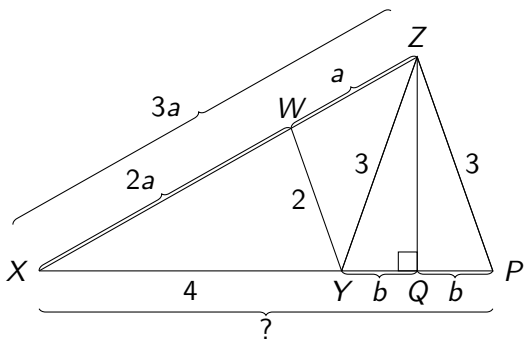


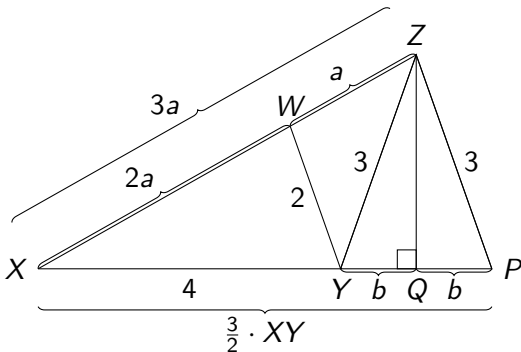
Compute XZ^2 .

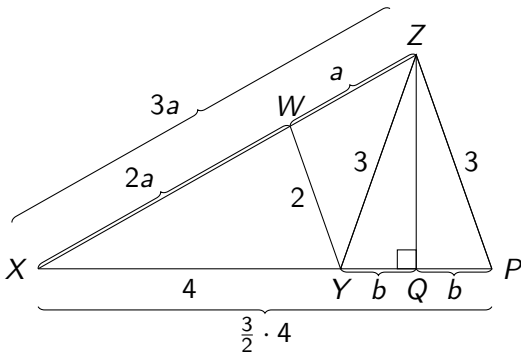


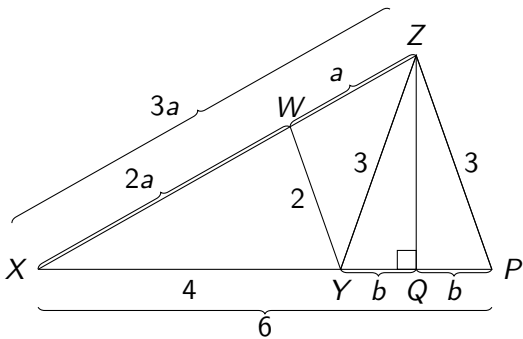
Compute XZ^2 .

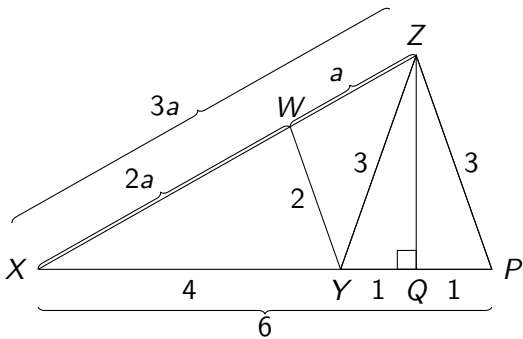
Compute XZ^2 .

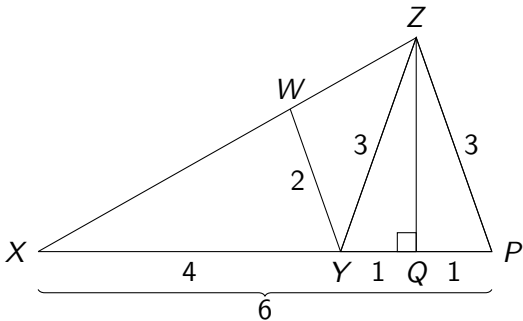
Compute XZ^2 .

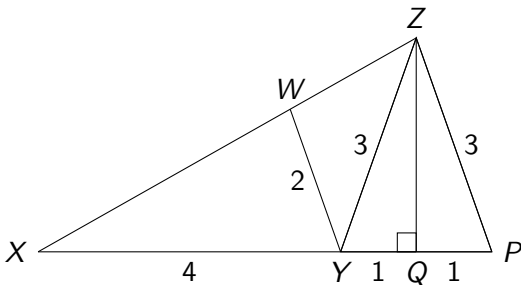
Compute XZ^2 .

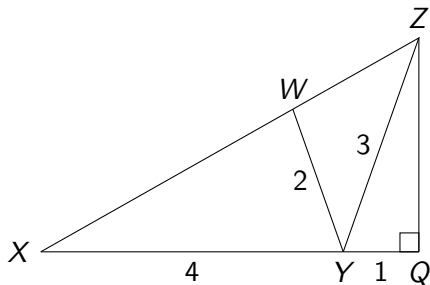
Compute XZ^2 .

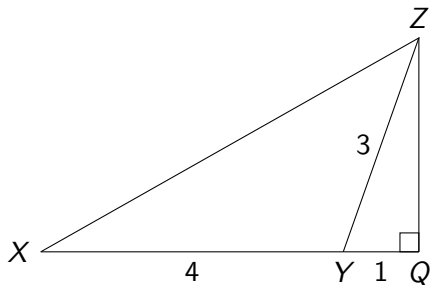
Compute XZ^2 .

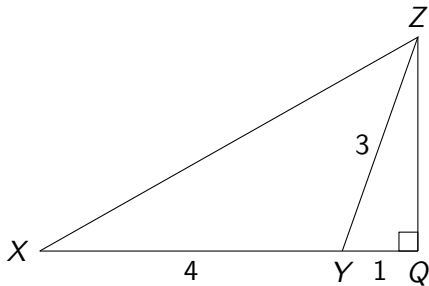
Compute XZ^2 .

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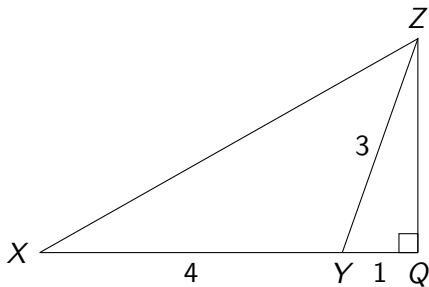
Compute XZ^2 .

Compute XZ^2 .

Compute XZ^2 .

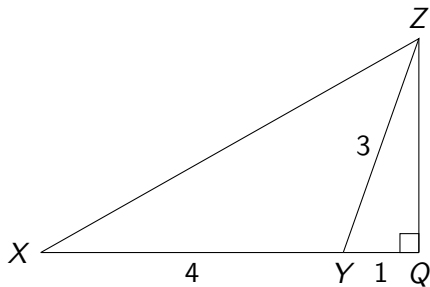
By Pythagorean theorem,

$$XZ^2 = XQ^2 + QZ^2$$

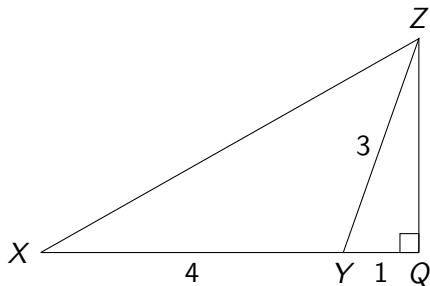
Compute XZ^2 .

By Pythagorean theorem,

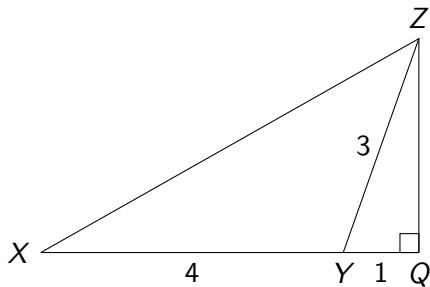
$$XZ^2 = XQ^2 + (YZ^2 - YQ^2)$$

Compute XZ^2 .

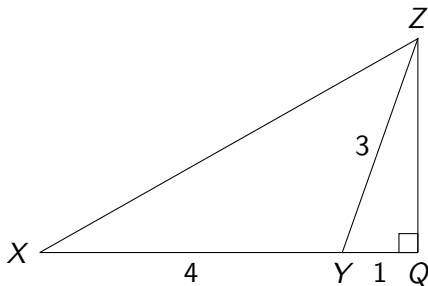
$$XZ^2 = XQ^2 + (YZ^2 - YQ^2)$$

Compute XZ^2 .

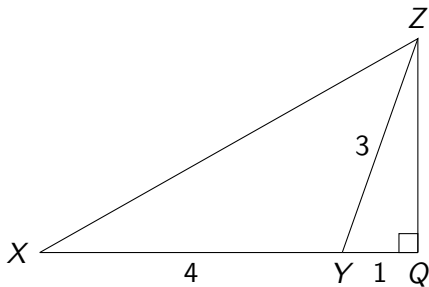
$$XZ^2 = (XY + YQ)^2 + (YZ^2 - YQ^2)$$

Compute XZ^2 .

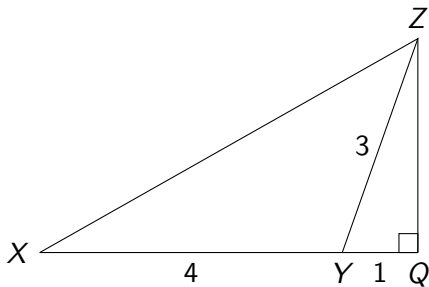
$$XZ^2 = (4 + YQ)^2 + (YZ^2 - YQ^2)$$

Compute XZ^2 .

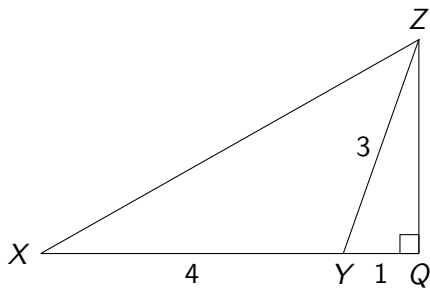
$$XZ^2 = (4 + 1)^2 + (YZ^2 - 1^2)$$

Compute XZ^2 .

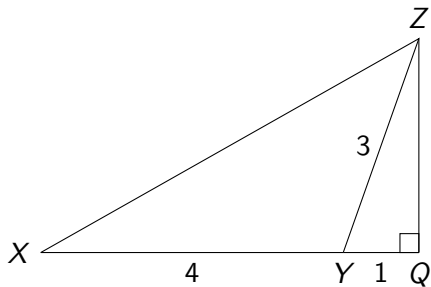
$$XZ^2 = (4 + 1)^2 + (3^2 - 1^2)$$

Compute XZ^2 .

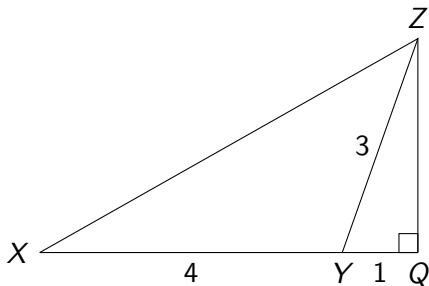
$$XZ^2 = 5^2 + (3^2 - 1^2)$$

Compute XZ^2 .

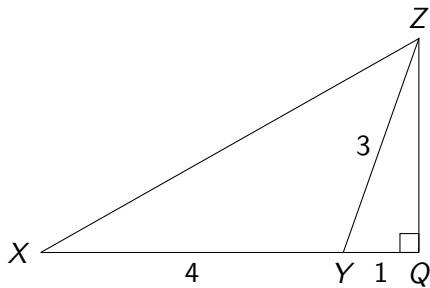
$$XZ^2 = 25 + (3^2 - 1^2)$$

Compute XZ^2 .

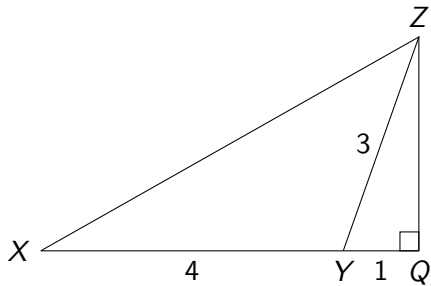
$$XZ^2 = 25 + (9 - 1^2)$$

Compute XZ^2 .

$$XZ^2 = 25 + (9 - 1)$$

Compute XZ^2 .

$$XZ^2 = 25 + 8$$

Compute XZ^2 .

$$XZ^2 = \boxed{33}$$



Review the concepts.

Concepts

- similar triangles
- properties of isosceles triangles

