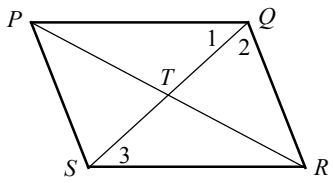
Exercise - Parallelograms

Questions 1-5 refer to the following information.



In $\square PQRS$ above, $PT = x + 2y$, $ST = 8x - y$, $PR = 32$, $TQ = 26$, $m\angle 1 = 6a$, $m\angle 2 = 10a$, $m\angle 3 = a^2 - 7$ and $m\angle PRS = 4a$.

1

What is the value of x?

2

What is the value of y?

3

What is the measure of $\angle PQR$?

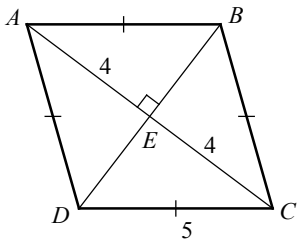
4

What is the measure of $\angle QRS$?

5

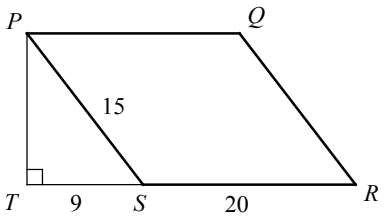
What is the measure of $\angle QTR$?

6



What is the area of rhombus $ABCD$ above?

7



In the figure above, $PQRS$ is a parallelogram and PTS is a right triangle. What is the area of the parallelogram $PQRS$?