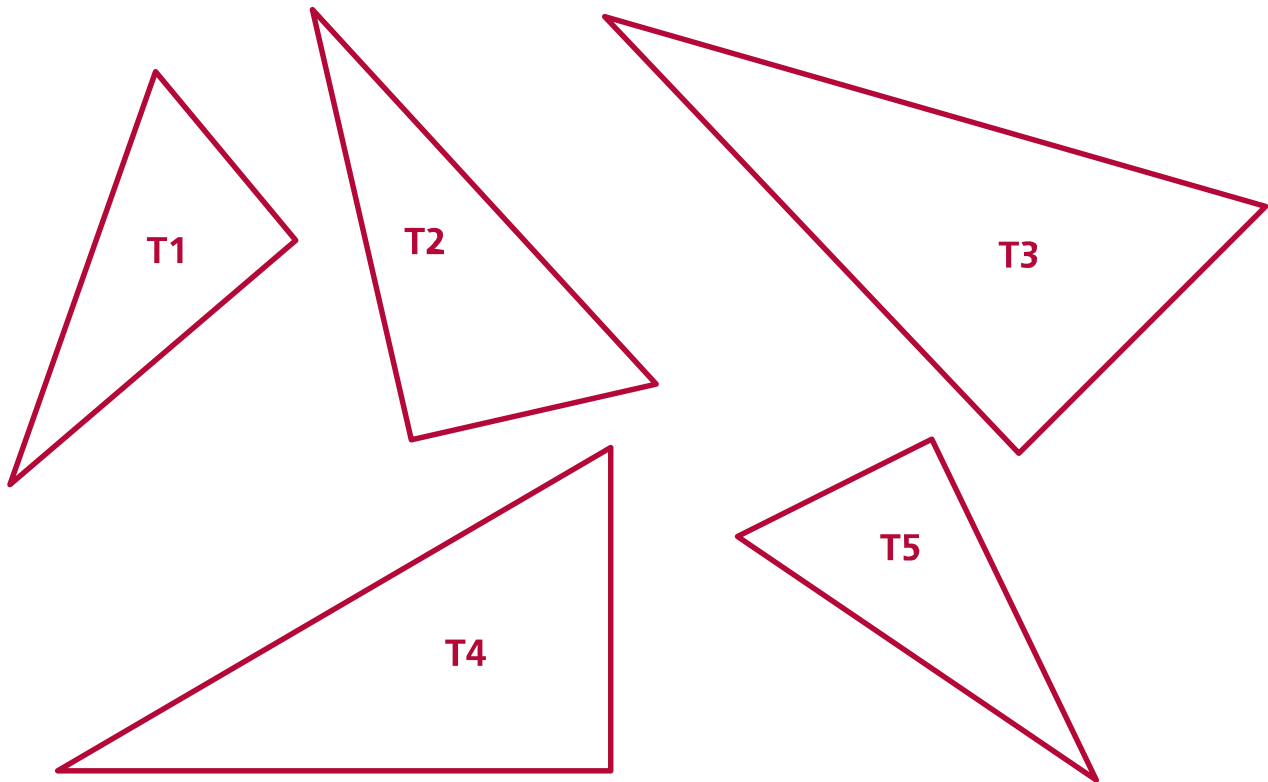# Student Activity 3

Calculating ratios for similar right angled triangles with angles of 30°

- Measure the 90° and the 30° angles in the following triangles. What is the measure of the third angle?
- Label the hypotenuse as "hyp". With respect to the 30° angle, label the other sides as "adj" for adjacent and "opp" for opposite.
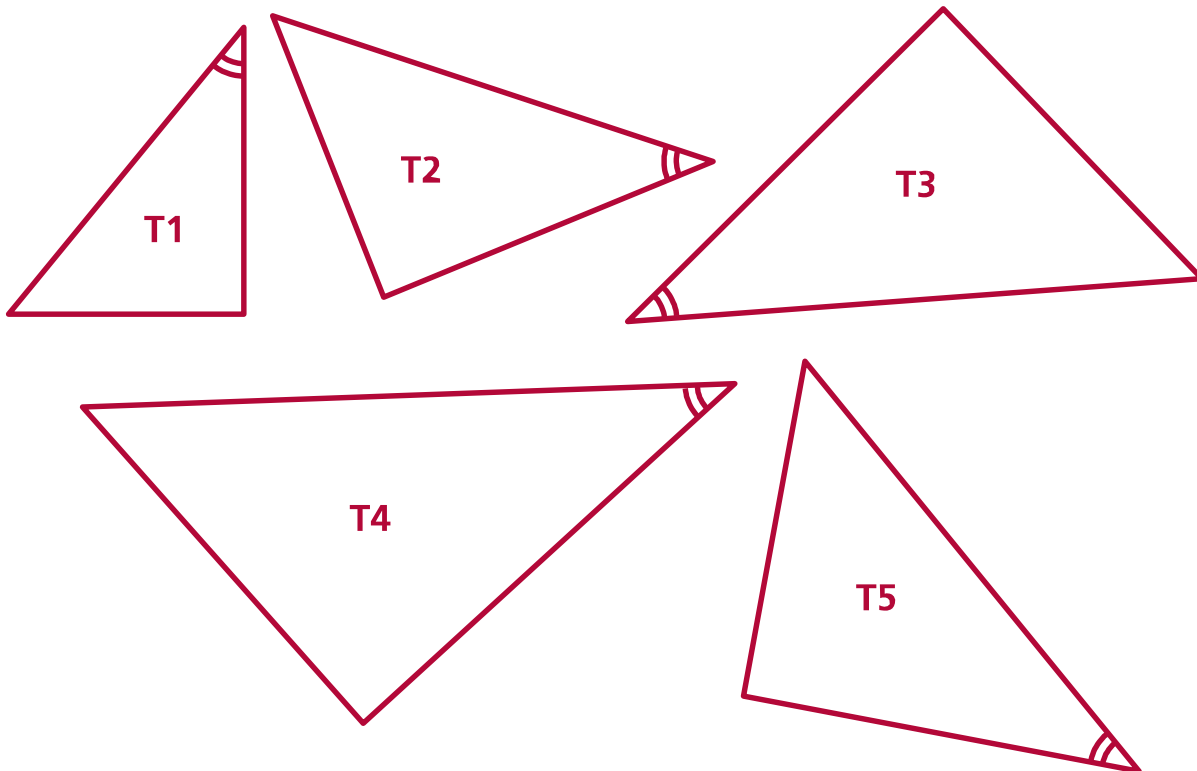- Complete the table below.

T1

T2

T3

T5

T4

Marked Angle Size=30°	|opp|/mm	|hyp|/mm	|adj|/mm	$\dfrac{\text{opp}}{\text{hyp}}$ (for angle=30°)		$\dfrac{\text{adj}}{\text{hyp}}$ (for angle=30°)		$\dfrac{\text{opp}}{\text{adj}}$ (for angle=30°)	
				fraction	decimal	fraction	decimal	fraction	decimal
T1									
T2									
T3									
T4									
T5									
Mean Value (correct to 2 decimal places)									

Student Activity 4

Calculating ratios for similar right angled triangles with angles of 40°

- Measure the 90° and the 40° angles in the following triangles. What is the measure of the third angle?

- Label the hypotenuse as "hyp". With respect to the 40° angle, label the other sides as "adj" for adjacent and "opp" for opposite.
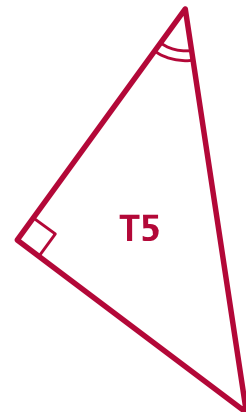
- Complete the table below.
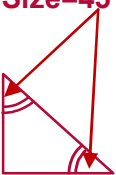
Marked Angle Size=40°	|opp|/mm	|hyp|/mm	|adj|/mm	$\dfrac{opp}{hyp}$ (for angle=40°)		$\dfrac{adj}{hyp}$ (for angle=40°)		$\dfrac{opp}{adj}$ (for angle=40°)	
				fraction	**decimal**	**fraction**	**decimal**	**fraction**	**decimal**
T1									
T2									
T3									
T4									
T5									
Mean Value (correct to 2 decimal places)									

Student Activity 5

Calculating ratios for similar right angled triangles with angles of 45°

- Measure the 90° and the 45° angles in the following triangles. What types of right angled triangle are these triangles?
- Label the hypotenuse as "hyp". With respect to the 45° angle, label the other sides as "adj" for adjacent and "opp" for opposite.
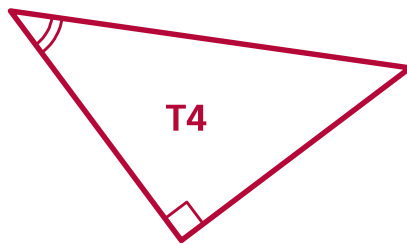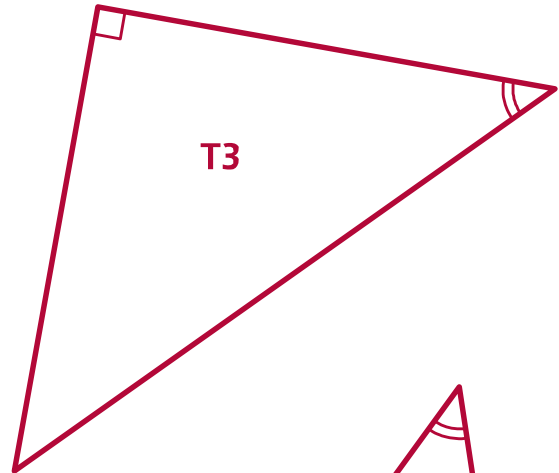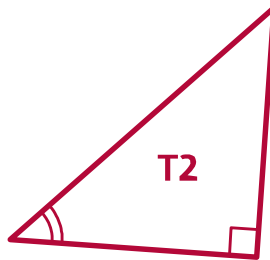- Complete the table below.
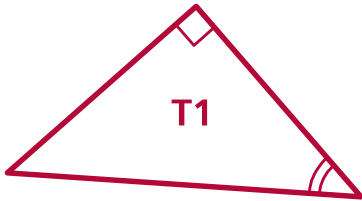
Marked Angle Size=45°	|opp|/mm	|hyp|/mm	|adj|/mm	$\dfrac{opp}{hyp}$ (for angle=45°)		$\dfrac{adj}{hyp}$ (for angle=45°)		$\dfrac{opp}{adj}$ (for angle=45°)	
				fraction	decimal	fraction	decimal	fraction	decimal
T1									
T2									
T3									
T4									
T5									
Mean Value (correct to 2 decimal places)									

Student Activity 6

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Calculating ratios for similar right angled triangles with angles of 50°

- Measure and label the 90° and the 50° angles in the following triangles. What is the measure of the third angle?

- Label the hypotenuse as "hyp". With respect to the 50° angle, label the other sides as "adj" for adjacent and "opp" for opposite.
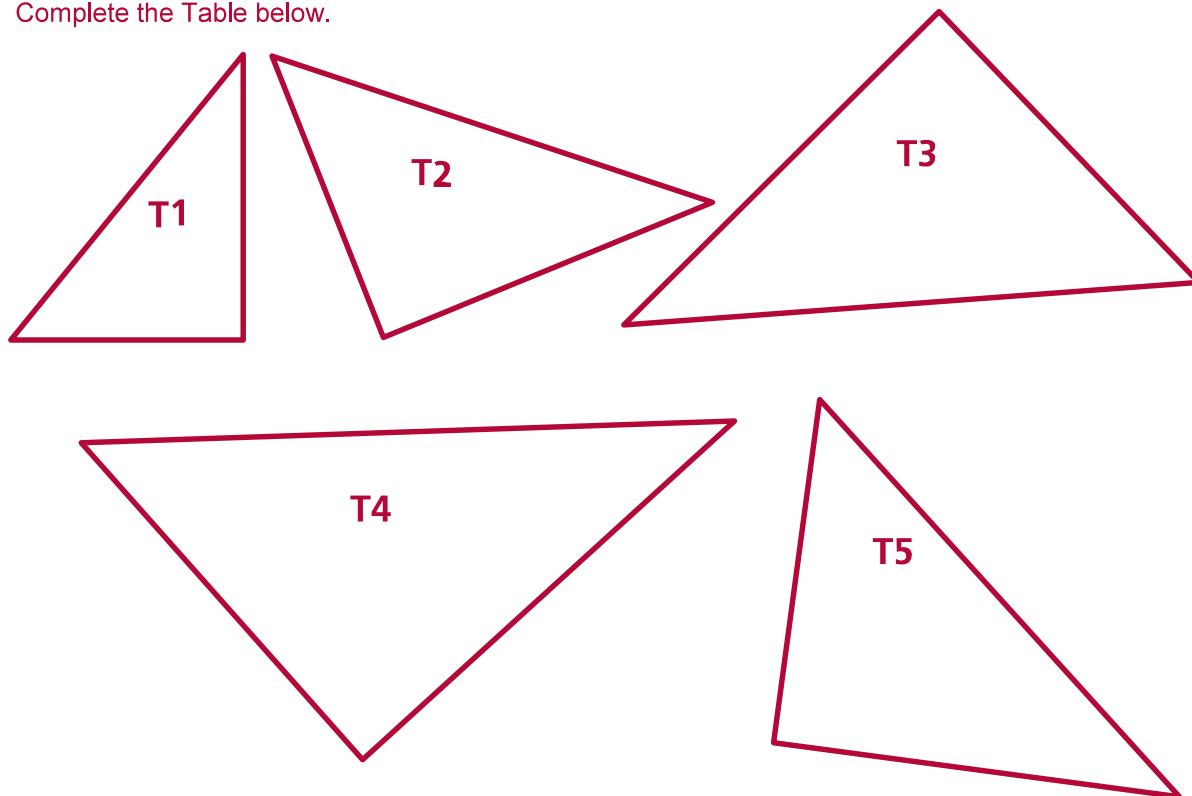
- Complete the Table below.

T1

T2

T3

T4

T5

Marked Angle Size=50°	|opp|/mm	|hyp|/mm	|adj|/mm	$\dfrac{opp}{hyp}$ (for angle=50°)		$\dfrac{adj}{hyp}$ (for angle=50°)		$\dfrac{opp}{adj}$ (for angle=50°)	
				fraction	decimal	fraction	decimal	fraction	decimal
T1									
T2									
T3									
T4									
T5									
Mean Value (correct to 2 decimal places)									

Student Activity 7

Calculating ratios for similar right angled triangles with angles of 60°

- Measure and label the 90° and the 60° angles in the following triangles. What is the measure of the third angle?
- Label the hypotenuse as "hyp". With respect to the 60° angle, label the other sides as "adj" for adjacent and "opp" for opposite.
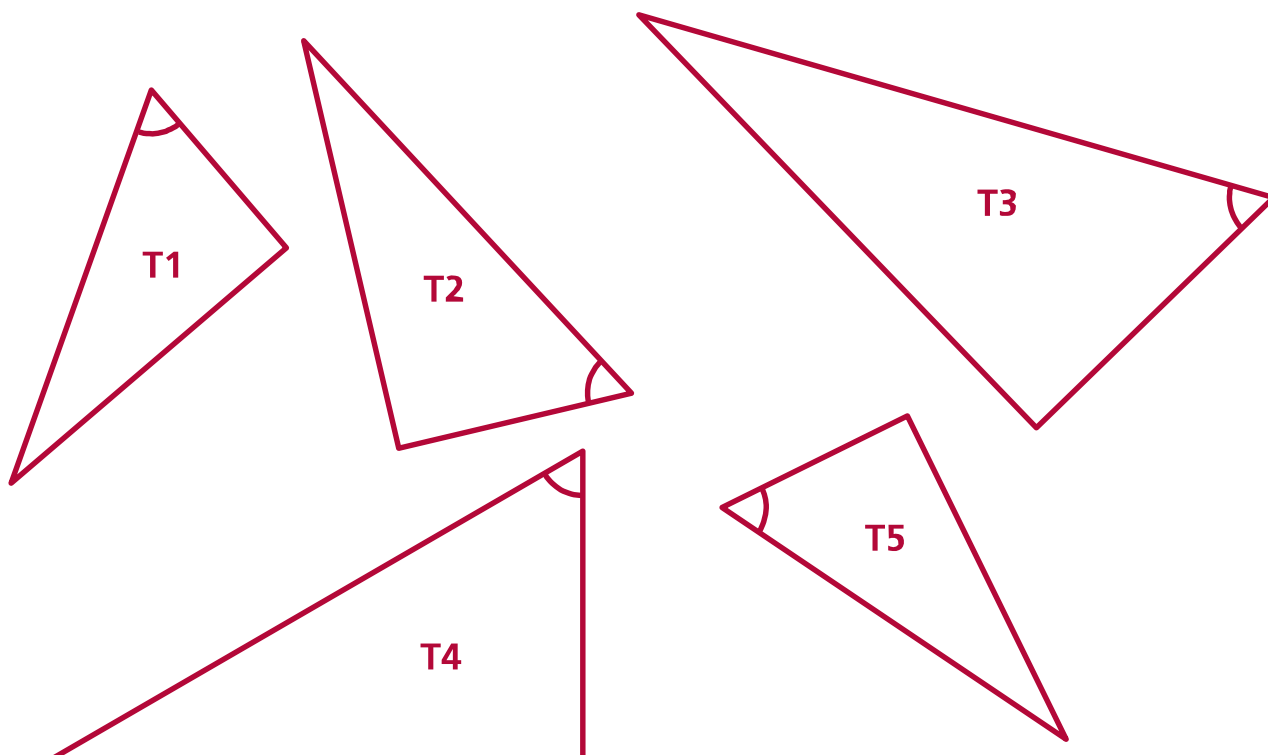- Complete the table below.

T1

T2

T3

T4

T5

Marked Angle Size=60°	|opp|/mm	|hyp|/mm	|adj|/mm	$\dfrac{opp}{hyp}$ (for angle=60°)		$\dfrac{adj}{hyp}$ (for angle=60°)		$\dfrac{opp}{adj}$ (for angle=60°)	
				fraction	decimal	fraction	decimal	fraction	decimal
T1									
T2									
T3									
T4									
T5									
Mean Value (correct to 2 decimal places)									

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Student Activity 8

Calculating ratios for similar right angled triangles with angles of 70°

- Measure and label the 90° and the 70° angles in the following triangles. What is the measure of the third angle?
- Label the hypotenuse as "hyp". With respect to the 70° angle, label the other sides as "adj" for adjacent and "opp" for opposite.
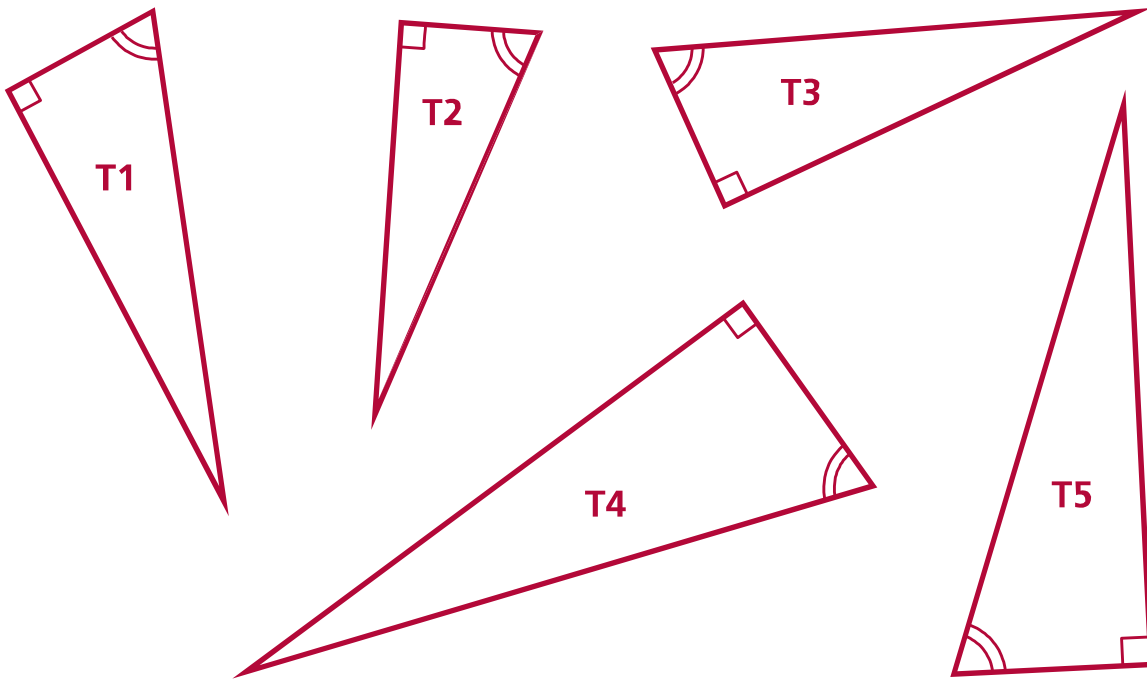- Complete the table below.

Marked Angle Size=70°	|opp|/mm	|hyp|/mm	|adj|/mm	$\frac{opp}{hyp}$ (for angle=70°)		$\frac{adj}{hyp}$ (for angle=70°)		$\frac{opp}{adj}$ (for angle=70°)	
				fraction	decimal	fraction	decimal	fraction	decimal
T1									
T2									
T3									
T4									
T5									
Mean Value (correct to 2 decimal places)									

Student Activity 9

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Master table of class results for ratios of sides in right angled triangles

Angle/°	$\frac{opp}{hyp}$	Check	$\frac{adj}{hyp}$	Check	$\frac{opp}{adj}$	Check
30°						
40°						
45°						
50°						
60°						
70°						

Student Activity 10

Using the master table of class results answer the following questions

1. What do you notice about sin 30° and cos 60°? _____

    _____

2. What do you notice about cos 30° and sin 60°? _____

    _____

3. Can you explain what you have noticed using diagrams?

4. How would you describe angles 30° and 60°? _____

    _____

5. Can you find similar examples in the master table? _____

    _____

6. For what angle in a right angled triangle is the opposite side one half of the
    hypotenuse? _____

    _____

    Draw a diagram to illustrate your answer.

7. For what angle in a right angled triangle are the opposite and adjacent sides equal?

    _____

8. Calculate $\frac{SinA}{CosA}$ for each angle A. Compare this to the value of Tan A. What do you
    notice? Can you justify the answer?_____

    _____

    _____