

## Knowledge and skills required to successfully complete your course

To be able to successfully study and complete an Electrical/Electrotechnology course at NMTAFE, you will need to have a good level of reading, comprehension and maths skills.

Examples of the knowledge you will need to demonstrate are shown in questions below.

You'll be expected to understand and complete calculations and conversions such as these.

**Q1. Scenario** On Monday, you buy a pie (\$4.80), sauce (\$0.60), a box of chips (\$4.50) and a bottle of water (\$3.00).

How much did you pay altogether? \_\_\_\_\_

Your mate asks to buy half your chips. How much do they need to give you? \_\_\_\_\_

Your mate gives you 2 x \$2.00 and asks for the change as it's needed for bus fare. How much change do you give back? \_\_\_\_\_.

Q2. Convert metres to millimetres	Convert millimetres to metres
1.5m = _____ mm	1000mm = _____ m
0.7m = _____ mm	1320mm = _____ m
3.3m = _____ mm	850mm = _____ m
15m = _____ mm	11234mm = _____ m
0.01m = _____ mm	550mm = _____ m

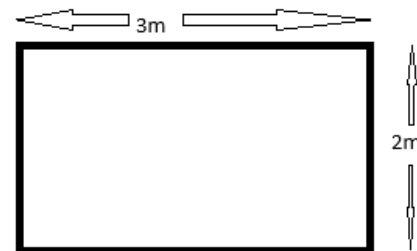
Q3. Match fractions to the percentage by drawing a line	Convert the fractions to decimals; write your answers.	Change the percentage to a decimal. Write your answers.
$\frac{1}{2}$ 25%	$\frac{1}{2} =$ _____	25% = _____
$\frac{3}{4}$ 175%	$\frac{3}{4} =$ _____	175% = _____
$\frac{1}{4}$ 50%	$\frac{1}{4} =$ _____	50% = _____
$1\frac{3}{4}$ 75%	$1\frac{3}{4} =$ _____	75% = _____

Q4.	
What is the square root of 169? _____	What does $3(8+4) =$ _____
What does equal $6^2 =$ _____	What does $\sqrt{16} =$ _____
What does $3^3 =$ _____	Find x if: $3x + 5 = 17$ $x =$ _____
What is 15% of \$90? _____	Find X if: $3X = \sqrt{9}$ $X =$ _____
What does $6 - 7 =$ _____	$V = IR$ , transpose the equation to find R _____

**Q5. Scenario** You need to drive your ute to a job 150km away, at a speed of 60km per hour. How long does it take to get there? \_\_\_\_\_ Your ute uses 12 litres of diesel per 100km. How many litres of diesel will be used during the trip? \_\_\_\_\_

**Q6. Floor Area and quoting**

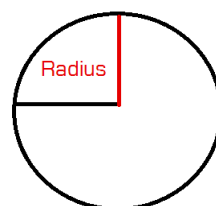
- What is the perimeter of the floor plan? \_\_\_\_\_
- What is the area of the floor plan? \_\_\_\_\_
- If conduit costs \$23.95 per linear metre and needs to run 4m how much will it cost to buy the conduit? \$ \_\_\_\_\_



Area = Length x Width

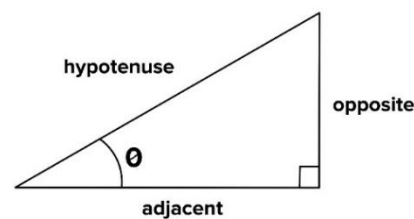
**Q7. The radius of this circle is 10mm**

- What is the diameter of this circle? \_\_\_\_\_
- What is the circumference of this circle? ( $C = d \times \pi$ ) \_\_\_\_\_
- What is the area of this circle? ( $A = \pi \times r^2$ ) \_\_\_\_\_



**Q8. Triangles**

- This type of triangle is called a \_\_\_\_\_ triangle. How many degrees are in the angle at corner between the opposite and the adjacent sides? \_\_\_\_\_
- What is the length of the hypotenuse, if the length of the OPPOSITE (OPP) is 3 units and the length of the ADJACENT (ADJ) is 4 units? \_\_\_\_\_



**$HYP^2 = (ADJ^2 + OPP^2)$ , where H =Hypotenuse, A=Adjacent, O= Opposite**

- If the length of the hypotenuse (HYP) is 73 units, and the angle at  $\emptyset$  is  $40^\circ$ , what is the length of the side ADJACENT (ADJ) to angle A? (Round your answer to ONE decimal place) \_\_\_\_\_
- If the length of the hypotenuse (HYP) is 68 units, and the angle at  $\emptyset$  is  $49^\circ$ , what is the length of the side OPPOSITE (OPP) to angle  $\emptyset$  (Round your answer to ONE decimal place). \_\_\_\_\_
- If the length of the side opposite angle  $\emptyset$  is 9 units, and the length of the side adjacent (ADJ) to angle  $\emptyset$  is 4 units, how many degrees are there in ANGLE A? (To the nearest WHOLE number). \_\_\_\_\_

$$\sin \emptyset = \frac{OPP}{HYP}$$

$$\cos \emptyset = \frac{ADJ}{HYP}$$

$$\tan \emptyset = \frac{OPP}{ADJ}$$