

Electro Critical Skills Resource Suite



Entry Level Literacy and Numeracy Assessment for the Electrotechnology Trades

Enrichment Resource

UNIT 9: Tables



managing apprentice progression

An E-Oz Energy
Skills Australia project.



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TABLES

The ability to obtain information from a table is an important skill in the electrical trade. Electricians need to refer to the SAA Wiring Rules to establish the requirements for electrical installations. The SAA Wiring Rules contains numerous tables which provide information and data about current carrying capacity of busbars, dimensions of conduit, mass of cables, fire protective clearances.

Quantity	Symbol	Units	Abbreviations
EMF	E	volts	V
Voltage	V	volts	V
Current	I	amperes	A
resistance	R	ohms	Ω

LEARNING OUTCOME

- Obtain information from a table

PERFORMANCE CRITERIA

- Locates specific data
- Interprets and records information accurately
- Time is used efficiently



TABLES

Tables are an effective method of organising a great deal of related information in a neat, concise way. A table shows information in a compact form and allows you to find quickly what you want to know.

Each part of a table has a purpose:

- The **title** tells what it is about.
- The **headings** tell what kinds of facts are listed.
- The **facts** give the information. They are usually listed in some kind of order.

TABLE 2**Typical Power Ratings of Household Appliances**

APPLIANCE	WATTS (W)
air conditioner	2500-9000
clock	2
clothes dryer	4500
dishwasher	2400
electric kettle	1500
electric oven	1800
freezer (200L)	160
hair dryer	1500
heater -fan type	2000-7000
-strip	550-1500
iron	1000
light -globe	25-100
-fluorescent	18-38
microwave	650
refrigerator -1 door	170
-frost free	260
stereo	200
toaster	600
TV	200
vacuum cleaner	500-1000
video recorder	100
washing machine	900

The amount of power used by different electrical appliances varies. This power rating is measured in watts (W). The higher the power rating, the more energy is used per second so the more expensive the appliance is to run.

READING THE TABLE

- What is the typical power rating of an electric kettle?

FINDING THE ANSWER -

Run your finger down the column headed "**Appliance**" until you find electric kettle. Then run your finger straight across to the right.

Answer The typical power rating of an electric kettle is 1500W.

- What appliance has a typical power rating of 260W?

Run you finger down the column headed "**Watts**" until you find 260W. Then run your finger straight across to the left.

Answer A frost free refrigerator has a typical power rating of 260W.

EXERCISE 1

Use Table 2. Typical Power Ratings of Household Appliances to complete the following statements.

- a) The typical power rating of a hairdryer isW
- b) Two appliances which have a typical power rating of 200W
areand.....
- c) The.....has the lowest typical power rating
of all the appliances in the table.
- d) A.....heater has a higher typical
power rating than aheater.
- e) The following appliances can have power ratings greater than 4000W
 - (i)
 - (ii)
 - (iii)
- f) A fluorescent light is more expensive to run than a.....
.....
- g) Arefrigerator is cheaper to run than
a.....refrigerator.

TABLE 3
Types of Fire Extinguishers






Type	water	foam	carbon	dry	halon
					
Colour	red	blue	black band	white band	yellow
For Class A fires wood, paper, cloth	✓	✓	✓	✓	✓
For Class B fires flammable liquids	✗	✓	✓	✓	✓
For Class C fires flammable gases	✗	✗	✓	✓	✓
For Class D fires combustible metals	✗	✗	✗	✗	✗
Fires involving live electrical equipment	✗	✗	✓	✓	✓

Table taken from Phillips, P. 1993 Electrical Fundamentals. Nelson, Victoria Page 157

The above table indicates which types of fire extinguisher can be used for different classes of fire.

EXERCISE 2

Using the table, tick (✓) the correct answer. There may be more than one correct answer.

- a) If there was a fire involving flammable gases I could use
- i. a foam extinguisher ☐
 - ii. an extinguisher that has a red band ☐
 - iii. a carbon extinguisher ☐
 - iv. any of the fire extinguishers in the table ☐
- b) The water type extinguisher
- i. Class D fires ☐
 - ii. is red in colour ☐
 - iii. has a white band ☐
 - iv. can only be used to fight fires involving wood,
paper and or cloth ☐
- c) An electrical fire can be fought with
- i. an extinguisher containing foam ☐
 - ii. the same extinguishers as for a Class C fire ☐
 - iii. an extinguisher with a white or blue band ☐
 - iv. only two types of extinguishers ☐

TABLE 4
Minimum Aerial Conductor and Catenary
Supported Cable Clearances

MINIMUM AERIAL CONDUCTOR AND CATENARY SUPPORTED
CABLE CLEARANCES

metres

1	2	3	4	5	6	7	8	9	10
Type of aerial conductor	Minimum height above building, Structures, ground or elevated areas				From buildings	From clothes lines, radio and television aerials, counter-poise or stay wires	From telephone and telegraph lines- subject to Telecom approval	Above water level in a swimming pool, walkway around a pool (see clause 6.3.4)	Above areas where sailing craft, irrigation pipes, are used
	Over areas used by vehicles	Over areas not used by vehicles	Over roofs used for traffic or resort	Over either roofs and structure	Horizontal clearance from walls, etc.				
Bare live conductors	5.5	5.0	3.0	3.0	2.0	2.0	0.5	5.0	Not permitted
Insulated live conductors	4.5	3.0	3.0	2.0	1.0	2.0	0.5	3.0	5.5
Double insulated neutral-screened cable	4.5	3.0	2.0	0.5	1.0	2.0	0.5	3.0	4.5
Cable supported by a calenary (see clause 3.14.5)									

Taken from the Australian Standard SAA Wiring Rules

EXERCISE 3

Using Table 4 Minimum Aerial Conductor and Catenary Supported Cable Clearances (above), answer the following questions:

- a) What is the minimum height a bare live conductor can be over an area not used by vehicles?
.....metres?
- b) Can an electrician install a cable supported by a catenary 2.5 metres from a television aerial?
.....
- c) What is the minimum distance an insulated live conductor must be from a building wall?
.....metres
- d) You want to install an aerial conductor 4.0 metres above a swimming pool. What kind of conductor must it not be?
.....
- e) What is the minimum height I can install an insulated live conductor above a harbour of a yacht club?
.....metres
- f) If an insulated live conductor is installed it must be a minimum of
.....metres over a carport roof

g) Aerial conductors cannot be installed less than.....metres
over the roof of a house.

h) The types of aerial conductors that can be installed 5.0 metres above a driveway are:

.....

.....

.....



Use the answer sheet to check your work

ANSWERS:

EXERCISE 1

- a. The typical power rating of a hairdryer is 1500W.
- b. Two appliances which have a typical power rating of 200W are a stereo and television.
- c. The clock has the lowest typical power rating of all the appliances in the table.
- d. A strip heater has a higher power rating than a fan type heater.
- e. The following appliances can have power ratings greater than 4000W.
 - i. air conditioner
 - ii clothes dryer
 - iii heater-fan type
- f. A fluorescent light is more expensive to run than a clock.
- g. A 1 door refrigerator is cheaper to run than a frost free refrigerator.

EXERCISE 2

- a. iii a carbon extinguisher
- b. ii is red in colour
iv can only be used to fight fires involving wood, paper and or cloth
- c. ii the same extinguishers as for a Class C fire

EXERCISE 3

- a. 5.0 metres
- b. YES
- c. a minimum of 1 metre
- d. bare live conductor
- e. 5.5 metres
- f. 4.5 metres

- g. 0.5 metres
- h. Insulated live conductors
Double insulated neutral-screened cable
Cable supported by a catenary