

# Practice Attitude

# QUIZ



## Engineering

## Engineering Practice Aptitude Quiz

It is critical for young people to build their career management skills so they can make informed choices regarding their study and training options and navigate a pathway towards their occupation and career of choice.

This career development resource combines labour market information with a practical industry specific activity to help develop awareness about the skills needed to pursue a career pathway in the Engineering Industry.

### PART 1: About the Engineering Industry

#### 1. The Engineering Industry in a nutshell

##### Key sectors:

- > Mechanical Maintenance
- > Mechanical Fitting
- > Machining
- > Manufacturing - Machine Operations
- > Locksmithing
- > Structural Steel Fabrication
- > Iron and Steel Casting and Forging
- > Non-ferrous Metals or Alloy Casting or Forging
- > Metal Products Fabrication - Boilers, water heaters, door handles etc.

The Engineering industry covers both the Mechanical Engineering and Metal Fabrication trades.

Mechanical Engineering covers the manufacture, installation, testing, operation and maintenance of machines, mechanical and mechatronics systems, automated systems and robotic devices, heat transfer processes, thermodynamic and combustion systems, fluid and thermal energy systems, materials and materials handling systems, manufacturing equipment and process plant.

The Metal Fabrication sector transforms metals into intermediate or end products by forging, stamping, bending, forming, machining and welding. Included in this sector are manufacturers who forge iron and steel, those who fabricate the structural steel components of buildings and other structures, metal container manufacturers who produce boilers, tanks from heavy gauge metals and sheet metal product manufacturers.

2. **Key occupation information** (Sources Job Outlook - [www.joboutlook.gov.au](http://www.joboutlook.gov.au) and Australian Jobs 2011 [www.deewr.gov.au/Employment/ResearchStatistics/Documents/AustralianJobs.pdf](http://www.deewr.gov.au/Employment/ResearchStatistics/Documents/AustralianJobs.pdf) )

### Weekly average earnings for major occupations:

- > Maintenance Fitter - \$1,200
- > Fitter and Machinist - \$1,230
- > Mechanical Fitter - \$1,200
- > Computer Numerical Control Setter - \$1,300
- > Machinist - \$1,200
- > Fitter and Machinist - \$1,200
- > Metal Machinist (First Class) - \$1,150
- > Locksmith - \$1,050
- > Heavy Metal Fabricator - \$1,100
- > Sheetmetal Trades Worker - \$1,100
- > Welder (First Class) - \$970
- > Light Metal Fabricator - \$1,100
- > Patternmaker - \$1,100
- > Foundry Tradesperson - \$800

### Jobs and demand information

**Maintenance Fitters** are specialist Mechanical Engineering Tradespersons. They are usually responsible for the maintenance, overhaul and repair of machinery and equipment. They may also be known as Bench Fitters, Diesel Fitter Mechanics, Fitter Machinists, Fitter Welders, Fluid Power Fitters or Plant Fitters.

- > Job prospects - Average to above average
- > Weekly earnings - \$1,200
- > Occupation size - 109,000

#### Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Mechanical Trade
- > Certificate IV in Engineering

**Mechanical Fitters** use tools, machines, equipment and engineering techniques to maintain and repair mechanical plant and equipment to operational standards. Work includes the identification of defect or worn mechanical components or equipment, repair/replacement of worn/faulty components or equipment, and modifications. Parts may be repaired or manufactured using general application of workshop machines including lathes, milling and drilling machines. Thermal heating and cutting and welding equipment are also utilised.

- > Job prospects - Average to above average
- > Weekly earnings - \$1,100
- > Occupation size - 4,400

#### Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Mechanical Trade
- > Certificate IV in Engineering

# QUIZ

**Fitter and Machinists** are Mechanical Engineering Tradespersons who have combined specialisation in mechanical fitting and metal machining. A fitter fits and assembles parts and sub-assemblies made from metal and other materials to make production machinery and other equipment. A metal machinist sets up and operates tools to cut, shape and form metal stock and castings to exact sizes, using detailed drawings, CAD systems and specifications. They machine metal components from single to complex forms.

- > Job prospects - Average to above average
- > Weekly earnings - \$1,200
- > Occupation size - 109,000

Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Mechanical Trade
- > Certificate IV in Engineering

**Locksmiths** use tools, equipment and engineering techniques to maintain and repair electronic locking and security systems to operational standards. Work involves the identification of defect or worn lock system components, repair/replacement/modification and/or installation of locking systems, gaining entry and performing security surveys. They can specialise in lock manipulation, safe work, key manufacture and identification, door closure work or master key systems.

- > Job prospects - Above average
- > Weekly earnings - \$1,050
- > Occupation size - 5,800

Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Locksmithing
- > Certificate IV in Engineering

**Heavy Metal Fabricators (Includes Boilermakers)** fit and assemble fabricated metal parts into products, set up machining tools, production machines and textile machines, and operate machining tools and machines to shape metal stock and castings.

- > Job prospects - Above average
- > Weekly earnings - \$1,100
- > Occupation size - 113,800

Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Fabrication Trade
- > Certificate IV in Engineering

**Sheetmetal Workers or Light Metal Fabricators** manufacture a variety of products and components using thin sheetmetal materials. They work with galvanised steel, mild steel, stainless steel, aluminium, copper and brass. Sheetmetal workers shape and form the cut material into products by operating sheetmetal shaping and forming machines such as brake presses, and folding, bending and rolling machines.

- > Job prospects – Average to above average
- > Weekly earnings - \$1,100
- > Occupation size - 11,000

Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Fabrication Trade
- > Certificate IV in Engineering

**Foundry Tradespersons (Moulders)** produce sand moulds by hand or use moulding machines, pour and trim castings and operate and monitor melting furnaces. Castings may be ferrous or non ferrous metal and be straight forward or involve complex shapes.

- > Job prospects - Average to above average
- > Weekly earnings - \$800
- > Occupation size - 2,600

Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Fabrication Trade
- > Certificate IV in Engineering

**Welders (First Class)** cut, shape, join and finish metal to make, repair or maintain a variety of metal structures and products. Welders work in the heavy machinery and equipment sector, and sometimes the light metals sector.

- > Job prospects - Above average
- > Weekly earnings - \$970
- > Occupation size - 82,000

Potential entry level qualifications:

- > Certificate II in Engineering
- > Certificate III in Engineering - Fabrication Trade
- > Certificate IV in Engineering

## About the qualifications

Qualifications provide the core skills, knowledge and experience (competencies) required for effective performance on the job plus the option of choosing a range of elective competencies that meet the needs of the employer and the individual.

Every qualification includes an emphasis on “Employability Skills” or the skills that employers identify as playing a significant part in contributing to an individual’s effective and successful participation in the workplace.

Employability skills are non-technical skills. They are also sometimes referred to as generic skills, capabilities, enabling skills or key competencies. The Employability Skills are:

- > **Communication skills** that contribute to productive listening and understanding, speaking clearly and directly and harmonious relations across employees and customers;
- > **Teamwork skills** that contribute to productive working relationships and outcomes;
- > **Problem-solving skills** that contribute to productive outcomes;
- > **Initiative and enterprise skills** that contribute to innovative outcomes;
- > **Planning and organising skills** that contribute to long and short-term strategic planning;
- > **Self-management skills** that contribute to employee satisfaction and growth;
- > **Learning skills** that contribute to ongoing improvement and expansion in employee and company operations and outcomes;
- > **Technology skills** that contribute to the effective performance of tasks.

## 3. Career Pathways

- > Australian Apprenticeships Pathways - view potential career pathways for this industry - [www.aapathways.com.au/search\\_job\\_02.cfm?c=33](http://www.aapathways.com.au/search_job_02.cfm?c=33)

Other useful careers sites are:

- > MAKE IT! Manufacturing careers website - [www.makeit.net.au/index.html](http://www.makeit.net.au/index.html)
- > My Future - [www.myfuture.edu.au](http://www.myfuture.edu.au)
- > Job Guide - [www.jobguide.thegoodguides.com.au](http://www.jobguide.thegoodguides.com.au)
- > Career Factsheets - [www.ncdw.com.au/index.php/Career-Factsheets.html](http://www.ncdw.com.au/index.php/Career-Factsheets.html)

## 4. Job Hunting

### Job vacancy website:

- > Australian Jobsearch - [www.jobsearch.gov.au/findajob/advancedsearch.aspx](http://www.jobsearch.gov.au/findajob/advancedsearch.aspx) The Australian Government's job site. Input your postcode, select the Occupation Category "Metal and Engineering Trades", then select "Mechanical Engineering Trades" scroll down to the "Additional Search Criteria" section and click on "Apprenticeships/Traineeships", then click on the "Find Jobs" button.

### Job hunting hints and labour market information:

- > Australian Apprenticeships Pathways - [www.aapathways.com.au](http://www.aapathways.com.au) Click on "Search" to find potential Australian Apprenticeships occupation ideas. You can also find Job Hunting hints in the "Self Help" menu item.
- > My Future: Labour Market Information - [www.myfuture.edu.au/services/default.asp?FunctionID=5400](http://www.myfuture.edu.au/services/default.asp?FunctionID=5400) Click on the map or use the drop down menu to find general labour market information for your region including 'top occupations and incomes'. Data is based on the most recently available census.

## 5. Useful Contacts

Here are some links to a range of support services, organisations and government agencies that may help with careers research and job hunting:

### Support services:

- > Search for your local Australian Apprenticeships Centre - [www.aapathways.com.au/search\\_aac.cfm](http://www.aapathways.com.au/search_aac.cfm)
- > Group Training Organisations employ Australian Apprentices and place them with businesses - [www.grouptraining.com.au](http://www.grouptraining.com.au)
- > Job Services Australia providers work with eligible job seekers to develop an individually tailored Employment Pathway Plan. The plan maps out the training, work experience and additional assistance needed to find job seekers sustainable employment - [www.jobsearch.gov.au/provider/ProviderLocation.aspx?ProviderType=JNS&](http://www.jobsearch.gov.au/provider/ProviderLocation.aspx?ProviderType=JNS&)

### Industry Organisations:

- > Manufacturing Skills Australia - [www.mskills.com.au](http://www.mskills.com.au)
- > Australian Industry Group (AiG) - [www.aigroup.com.au](http://www.aigroup.com.au)
- > Australian Manufacturing Workers' Union - [www.amwu.org.au](http://www.amwu.org.au)

### Government Agencies:

- > Department of Innovation, Industry, Science and Research - [www.innovation.gov.au](http://www.innovation.gov.au)
- > AusIndustry - [www.ausindustry.gov.au/Pages/AusIndustry.aspx](http://www.ausindustry.gov.au/Pages/AusIndustry.aspx)
- > Commonwealth Scientific and Industrial Research Organisation (CSIRO) - [www.csiro.au](http://www.csiro.au)

## PART 2: About this Resource

# QUIZ

### Guidance

This Practice Aptitude Quiz is intended to be a general illustration of some of the key learning standards required of people attempting an Australian Apprenticeships entry level qualification in the Engineering industry.

**This Practice Aptitude Quiz is neither a formal tool nor a direct pre-requisite for any job application.**

This Quiz has been developed with the assistance of Industry and Registered Training Organisations, based on the needs and requirements of the Industry sector.

This Practice Aptitude Quiz has two components: Mathematics and Literacy. You will find that this Quiz differs from similar tests administered by Industry as their tests may have other elements included, that this one does not, such as: Mechanical Reasoning; Engineering Knowledge and reasoning and; General Knowledge.

The mathematics skills required to complete the questions contained within this document are equivalent to mathematics at the Year 10 level.

The Quiz can be used by different organisations and people such as careers practitioners with young people, Group Training Organisations and Job Services Australia providers with job seekers.

The Practice Aptitude Quiz can be:

- used by careers practitioners with individuals or in a class setting to provide general guidance on the level of study involved in undertaking an entry level qualification in this industry;
- provided to people to enable them to practice their skills before sitting an actual aptitude test;
- used by teachers as a guide to industry math requirements at the entry point of this particular Australian Apprenticeship career path.

The assessment should be able to be completed in approximately 1 hour and 20 minutes

Calculators may be used to complete this practice assessment, but the majority of the quiz should be attempted without calculators.

**Please note that rates quoted in this for various items, including pay rates, are not meant to reflect today's values, but are used purely for mathematical purposes.**

Answers are located at the end of the quiz.

## After the Quiz

There are a range of support services available to help you find out about courses that may help you improve your literacy and numeracy skills and also your readiness for work.

If you are still at school you should discuss any concerns you may have with your career practitioner. Further information may also be provided by a Job Services Australia provider, an Australian Apprenticeships Centre, a Group Training Organisation or a training provider.

## Useful Contacts

Here are some links to job seeker support services:

- > Search for your local Australian Apprenticeships Centre - [www.aapathways.com.au/search\\_aac.cfm](http://www.aapathways.com.au/search_aac.cfm)
- > Find a local Group Training Organisation - [www.grouptraining.com.au/Find/find\\_gto.html](http://www.grouptraining.com.au/Find/find_gto.html)
- > Job Services Australia providers work with eligible job seekers to develop an individually tailored Employment Pathway Plan. The plan maps out the training, work experience and additional assistance needed to find job seekers sustainable employment - [www.jobsearch.gov.au/provider/ProviderLocation.aspx?ProviderType=JNS&](http://www.jobsearch.gov.au/provider/ProviderLocation.aspx?ProviderType=JNS&)

## Part 3: The Quiz

# QUIZ

### Section 1 - Literacy, Reading and Comprehension

#### Spelling

1. Write the following words or group of words into alphabetical order.

Toolmaker	
Engineering	
Computer aided manufacture	
Boilermaker	
Weighing	
Computer numerical controlled	
Computer aided design	
Welders	
Engineering patternmakers	
Design moulds	

2. The following text has 10 spelling errors. Correct those errors and list them in the order you find them.

Toolmackers make precision equipement and tools used to manufacture mechinary. They use precision measuring equipment and may use CNC machines and computer ayded manufacturing (CAM) systems to acheive very precise finishes and sises. Any company manufacturing presed metal or plastic items requies the service of a toolmacker.

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

3. The following text has 12 spelling errors. Correct those errors and list them in the order you find them.

Computer Aided Design (CAD) systems are used by Mechanical Drafters to simulate the performance of a product. They can test whether a bridge will carry predicted loads safely, or even whether tomatoe sauce will pour correctly from a newlee designed container.

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.
11.	12.

## Comprehension

4. Read the following passage and answer the questions that follow.

### Engineering Health and Safety

In the engineering trades you are constantly using your mind and body to maintain and repair products. This means you need to look after yourself carefully to have a long and safe career.

The main objective of safety is receiving correct information training instruction and supervision throughout your apprenticeship. At times you may feel under pressure to take on tasks you haven't been adequately trained for or to rush and cut corners for a job you need to get done quickly. Any of these things could lead to an injury or an accident.

Let's look at the main hazards of engineering and the way we can control and protect ourselves and our workmates.

Burns are common in engineering and are often caused by poor preparation or not using the correct safe work procedures or Personal Protective Equipment (PPE). Different types of processes can cause different types of burns. Welding can cause radiation burns or hot pieces of material can fly towards you. While machining metals and hot materials could also burn you. Welding can produce sparks that can easily start a fire so you need to ensure that no rags, loose clothing or combustible materials are in your work area. Every engineering process that can cause burns will have a safe work procedure and PPE designed to keep you and those around you safe.

Lacerations are cuts to the body, but most laceration injuries occur to the hands. Sharp tools like knives and cutting tools are an obvious cause of lacerations. Handling sheet metal is another hazard. Using lathes, milling machines and drills can produce flying debris called swarf which is extremely sharp. Never try and remove swarf by hand. There are tools available to safely remove swarf. Lacerations can lead to serious injury so don't rush or take short cuts.

# QUIZ

Injuries from manual tasks can occur as a result of repetitive actions, poor or awkward postures, exerting high force to push, pull or lift heavy things and vibration. These hazardous activities can lead to serious muscular or skeletal injuries that can either appear suddenly or over a long period of time. In any situation it is very important to use correct lifting techniques to pick things up or move them. If you think they are going to be heavy or awkward use a mechanical aid or lifting device or get help. When you move an object make sure you have a clear pathway with no obstructions so you can see where you are going without tripping over anything. If you spill anything or see anything spilt on the floor clean it up straight away. You or someone else could slip and fall.

It's surprising how much we take our eyes and ears for granted but in workshops and on site there are a multitude of hazards to both our sight and our hearing. Grinding, cutting and welding, using lathes, milling machines and drills are all processes that produce flying debris. Without correct protection particles could get in your eyes or face. There are different types of eye protection for different jobs. Sometimes you'll need a full face shield instead of goggles depending on whether you are cutting grinding or drilling for instance.

Many tradespeople in their later years may experience some degree of hearing loss. This can often be due to not using the correct hearing protection during their career. Engineering work creates a range of noises that can damage your hearing. Both long term exposure and sudden loud bursts of noise can lead to hearing loss and damage to hearing is generally irreversible.

Don't think it won't happen to you, be safe at work!

## Answer the following questions:

a. What is the main objective of safety?

---

---

---

b. What are the main hazards of engineering?

---

---

---

c. There are different types of burns. What are they?

---

---

---

d. Name 2 types of PPE mentioned in the text.

---

---

e. What hazardous activities can lead to muscular or skeletal damage?

---

---

---

## Section 2 - Mathematics

### Numbers (Conversions, Estimation, Time)

1. Convert the following:

- a. \$2.41 to cents \_\_\_\_\_
- b. 182 days to weeks \_\_\_\_\_
- c. 3 hours and 12 seconds to seconds \_\_\_\_\_
- d. 8 kilometres to metres \_\_\_\_\_
- e. 3.5 kilograms to grams \_\_\_\_\_

2. How many hours and minutes from 7:45 am to 3:15 pm?

---

3. Select the best estimate for the following: (Circle the correct response)

- a.  $4,249 \times 71$ 
  - i. 280,000
  - ii. 150,000
  - iii. 28,000
- b.  $80,000 \div 38$ 
  - i. 200
  - ii. 2,000
  - iii. 20,000
  - iv. 4,000

# QUIZ

4. Round:

a. 35.6754 to two decimal places \_\_\_\_\_

b. 425.8 to the nearest tens \_\_\_\_\_

5. Find the decimal number halfway between:

a. 0.6 and 0.8 \_\_\_\_\_

b. 2.8 and 2.9 \_\_\_\_\_

6. Circle the correct answer to:  $18.642 \div 0.02$

a. 9.321

b. 93.21

c. 9321

d. 932.1

7. Munro, a qualified tradesperson earns \$1,100 a week. He gets a pay rise of 5%. What is his new wage?

\_\_\_\_\_

8. 1000 brackets are manufactured. 60% need to be delivered in 24 hours. How many brackets are required?

\_\_\_\_\_

9. In an order of 2000 hexagonal nuts, 40 were defective. What percentage were:

a. defective \_\_\_\_\_

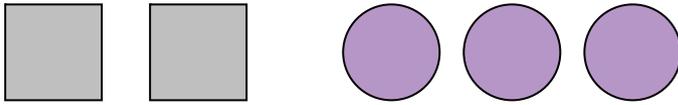
b. good \_\_\_\_\_

10. The price of a micrometre is normally \$84. During a sale, there was a 25% reduction. Calculate the sale price?

\_\_\_\_\_

## Ratio

11. What is the ratio of the number of circles to squares?



Ratio: \_\_\_\_\_

12. A cutting wheel cuts through 0.5cm of steel in 1 minute. How long will it take to make a cut 3.5cm deep?

\_\_\_\_\_ mins

13. An air conditioning unit circulates 320 cubic metres of air per minute. How many cubic metres of air is circulated in a hour?

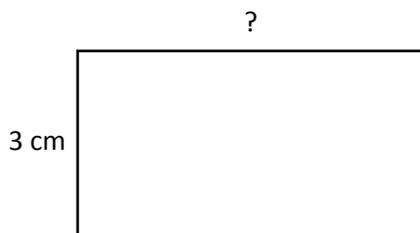
\_\_\_\_\_

14. Two gears have 12 and 15 teeth respectively. What is the ratio of the number of teeth on the first gear to the number of teeth on the second gear in lowest terms?

\_\_\_\_\_

## Area

15. The area of a tin plate is  $15 \text{ cm}^2$ . Its width is 3 cm. Find the length of the plate?



Length = \_\_\_\_\_

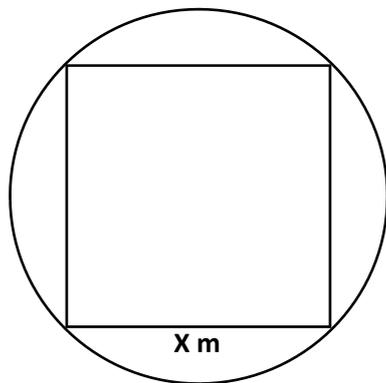
16. A piece of wire is 24 mm long and is bent in the shape of a rectangle so that the length is twice its width. Find the area of the rectangle?

\_\_\_\_\_

17. A square is inscribed in a circle of radius 5 m.

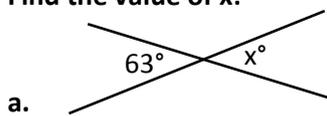
Calculate:

- a. the area of the circle (Correct to two decimal places)  
*Hint: Use the formula  $A = \pi r^2$ , where  $\pi = 3.14$ .*
- b. the diameter of the circle
- c. the value of  $x$ . (Correct to two decimal places)  
*Hint: you'll need to use Pythagoras's Theorem:  $a^2 + b^2 = c^2$*
- d. the area of the square. (Correct to two decimal places)

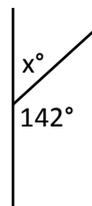


- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

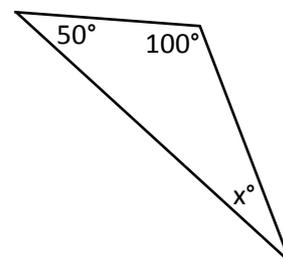
18. Find the value of  $x$ :



b.



c.

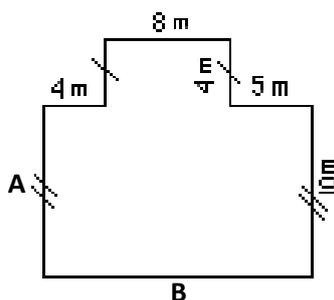


$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

19. From the sheet metal shown, calculate the unmarked lengths 'A' and 'B'.

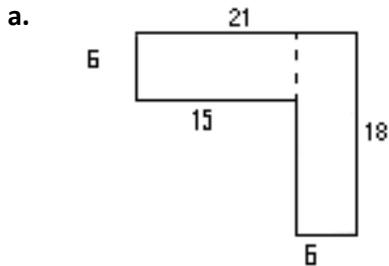


a.  $A =$  \_\_\_\_\_

b.  $B =$  \_\_\_\_\_

20. Calculate the area of the shapes shown? For 'b.' use  $\pi = 3.14$

All calculations are in mm. (Hint - round up)



Area = \_\_\_\_\_



Area = \_\_\_\_\_

### Problem Solving

21. Irenka the engineer is paid \$27.00 per hour plus time and a half for any hours over 35 hours. If she worked 42 hours, what was her pay for:

- a. the first 35 hours work? \_\_\_\_\_
- b. the overtime work only? \_\_\_\_\_
- c. total pay? \_\_\_\_\_

22. An engineer cut two pieces of metal rod each  $10\frac{1}{2}$  cm long from a rod 50 cm long. How much of the original rod was left?

\_\_\_\_\_

23. The weight of three bolts are 52g, 49g, and 61g. What is the average weight of the bolts?

\_\_\_\_\_

24. A 4 metre length of steel is cut into 5 equal sections. How long is each piece (ignoring the saw cuts)?

\_\_\_\_\_

25. A machinist drills a hole 65 mm into a block of steel 10 cm thick. How much further is left to drill?

\_\_\_\_\_

# QUIZ

26. The following lengths were cut from a piece of angle iron: 8 cm, 27cm, 41cm, 37cm, and 16 cm. What was the total length cut? (ignore the saw cuts)

\_\_\_\_\_

27. A welder requires 8 welding rods to weld a bracket into place. How many welding rods are required to weld 12 brackets?

\_\_\_\_\_

28. Nine similar pieces of sheet metal have a total thickness of 0.27 cm. What is the:

a. thickness of 1 piece? \_\_\_\_\_

b. thickness of 4 pieces? \_\_\_\_\_

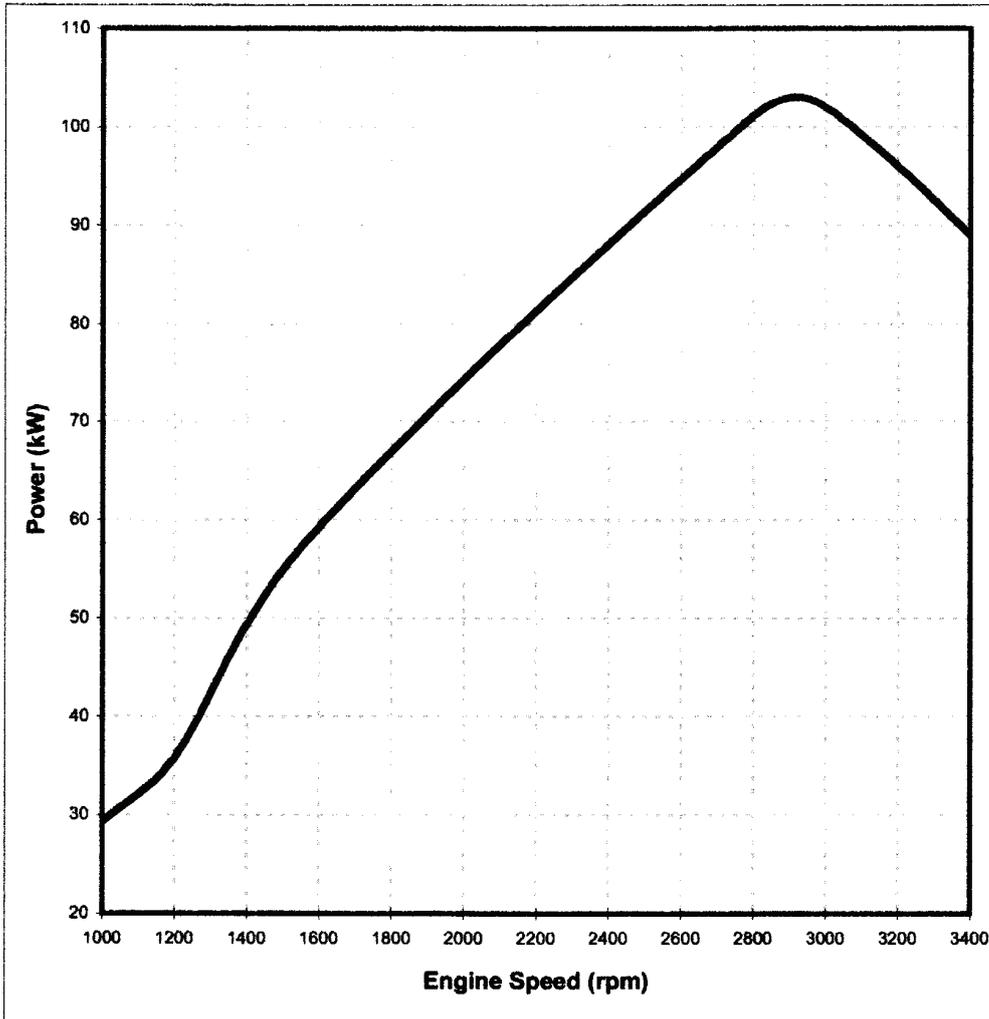
29. An assembly worker takes 30 seconds to build a component. How many components can be assembled in 1 hour?

\_\_\_\_\_

30. If one litre of paint covers 12 square metres, how many litres of paint is needed to paint a lounge room which has an area of 36 square metres?

\_\_\_\_\_

31. Looking at the graph complete the table below.

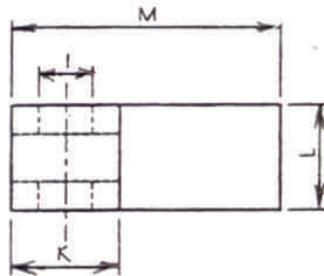


POWER kW	RPM
	1400
60	
	2300

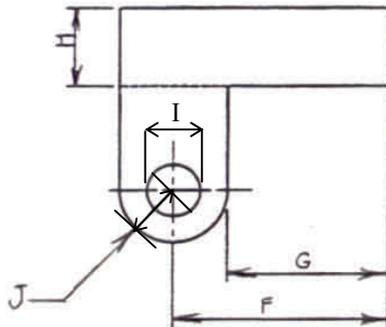
## 32. Drawing Reading Exercise

From the orthographic drawings shown below, fill in the missing dimensions.

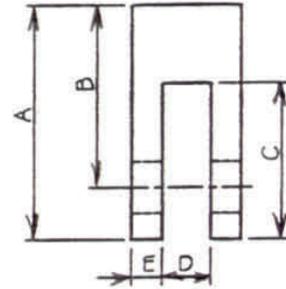
Please note that the drawing is not to scale.



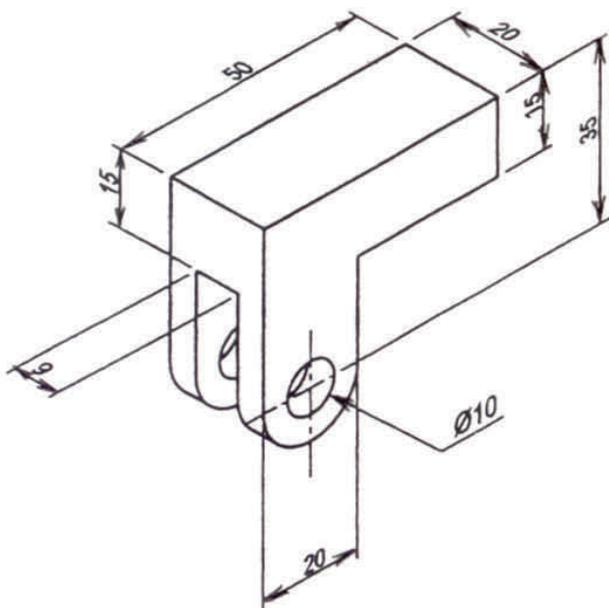
TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW



- A = \_\_\_\_\_
- B = \_\_\_\_\_
- C = \_\_\_\_\_
- D = \_\_\_\_\_
- E = \_\_\_\_\_
- F = \_\_\_\_\_
- G = \_\_\_\_\_
- H = \_\_\_\_\_
- I =  $\varnothing$  \_\_\_\_\_
- J = \_\_\_\_\_
- K = \_\_\_\_\_
- L = \_\_\_\_\_
- M = \_\_\_\_\_

**Section 1 - Literacy, Reading & Comprehension**

1. Boilermaker, Computer aided design, Computer aided manufacture, Computer numerical controlled, Design moulds, Engineering, Engineering patternmakers, Toolmaker, Weighing, Welders
2. Toolmakers, equipment, machinery, aided, achieve, sizes, manufacturing, pressed, requires, toolmaker
3. Aided, systems, Mechanical, Drafters, performance, whether, bridge, loads, whether, tomato, pour, newly
4.
  - a. The main objective of safety is receiving correct information training instruction and supervision throughout your apprenticeship
  - b. Burns, lacerations, injuries from manual tasks, sight and hearing hazards
  - c. radiation burns, burns from sparks
  - d. face shield, goggles
  - e. repetitive actions, poor or awkward postures, exerting high force to push, pull or lift heavy things, vibration

**Section 2 – Mathematics**

1. a. 241 cents    b. 26 weeks    c. 10,812 seconds    d. 8,000 m    e. 3,500g
2. 7 hours & 30 minutes
3. a. 280000    b. 2000
4. a. 35.68    b. 430
5. a. 0.7    b. 2.85
6. d. 932.1
7. \$1,155
8. 600
9. a. 2%    b. 98%
10. \$63
11. 3:2
12. 7 minutes
13. 19,200m<sup>3</sup>
14. 4:5
15. 5cm
16. 32mm<sup>2</sup>
17. a. 78.5m<sup>2</sup>    b. 10m    c.  $\sqrt{50m} = 7.07$     d. 49.98m<sup>2</sup>

# QUIZ

18. a.  $63^\circ$       b.  $38^\circ$       c.  $30^\circ$

19. a. 10m      b. 17m

20. a.  $198\text{mm}^2$       b.  $357\text{mm}^2$

21. a. \$945      b. \$283.50      c. \$1,228.50

22. 29 cm

23. 54 g

24. 0.8 m

25. 35 mm

26. 129 cm

27. 96 welding rods

28. a. 0.03cm      b. 0.12cm

29. 120 components

30. 3 litres

31.

POWER kW	RPM
50	1400
60	1600
85	2300

32. a. 45      b. 35      c. 30      d. 9      e. 5.5  
f. 40      g. 30      h. 15      i. 10      j. 10  
k. 20      l. 20      m. 50

## Contributions

This Practice Aptitude Quiz would not have been possible without the support of the State Government of South Australia, Group Training Australia (SA) Inc and its members.

**This Practice Aptitude Quiz was developed by:**



**Group Training South Australia** - [www.gtasa.com.au](http://www.gtasa.com.au)

Group Training Australia (SA) (GTA SA) is a network of independent not for profit organisations located in metropolitan Adelaide and all major population centres throughout the state. These organisations operate on either an industry or regional basis and collectively they provide employment for in excess of 4,000 apprentices and trainees.

**GTA SA members are:**

AFL SportsReady - [www.aflsportsready.com.au](http://www.aflsportsready.com.au)

ATEC Group Training - [www.atec.asn.au](http://www.atec.asn.au)

Australian Industry Group Training Services - [www.aigts.com.au](http://www.aigts.com.au)

Career Employment Group - [www.ceg.net.au](http://www.ceg.net.au)

Group Training Employment - [www.gte.org.au](http://www.gte.org.au)

Hospitality Group Training - [www.hospitalitysa.com.au](http://www.hospitalitysa.com.au)

Maxima Group Training - [www.maxima.com.au](http://www.maxima.com.au)

Motor Trade Association Group Training Scheme - [www.mtagts.asn.au](http://www.mtagts.asn.au)

Murraylands Training & Employment Association of SA Inc - [www.mteasa.com.au](http://www.mteasa.com.au)

PEER VEET - [www.peer.com.au](http://www.peer.com.au)

Plumbing Industry Association Group Training - [www.piasa.com.au](http://www.piasa.com.au)

SMGT Total Employment Solutions - [www.smgmt.com.au](http://www.smgmt.com.au)

Statewide Group Training - Torrensville - [www.statewideapprenticeships.com.au](http://www.statewideapprenticeships.com.au)

Trainee and Apprentice Training Service Inc (TAPS) - [www.tapssa.com.au](http://www.tapssa.com.au)

**With specific thanks to:**



**Murraylands Training & Employment Association of SA Inc** - [www.mteasa.com.au](http://www.mteasa.com.au)

"Murraylands Training & Employment have placed many Apprentices and Trainees in the Engineering sector and one of our Board Members shares his knowledge willingly as he owns the largest Engineering firm in the region. We are able to place Apprentices & Trainees with Hosts who are using cutting edge techniques and are leaders in their fields of expertise."



**Statewide Group Training – Torrensville** - [www.statewideapprenticeships.com.au](http://www.statewideapprenticeships.com.au)

Statewide Group Training is a community based organisation covering all areas of SA for the past 20 years. Our staff live locally & have many years experience in the recruitment, placement & mentoring of apprentices and trainees.



# QUIZ

## **ATEC Group Training** - [www.atec.asn.au](http://www.atec.asn.au)

ATEC Group Training specialises in the recruitment, employment and placement of apprentices in the engineering, manufacturing and associated industries. We simplify the apprenticeship system for both employers and apprentices, and offer a number of benefits over traditional employment arrangements.



## **AiGTS (Australian Industry Group Training Services)** - [www.aigts.com.au](http://www.aigts.com.au)

AiGTS (Australian Industry Group Training Services) is a Registered Training Organisation (RTO). We have a 50 year history in providing quality training solutions to our clients across many industry sectors throughout Australia.



## **Australian Apprenticeships Pathways Website** - [www.aapathways.com.au](http://www.aapathways.com.au)

This website provides sample Australian Apprenticeships job descriptions and links to more Australian Apprenticeships information and resources. The site is funded by the Department of Education, Employment and Workplace Relations.



## **Construction and Property Services Industry Skills Council** - [www.cpsisc.com.au](http://www.cpsisc.com.au)

Construction and Property Services Industry Skills Council (CPSISC) The CPSISC represents the workforce training and development needs of an extremely large and vitally important sector of the Australian economy - the Construction and Property Services Industries.



## **The Career Education Association of Victoria** - [www.ceav.vic.edu.au](http://www.ceav.vic.edu.au)

The CEAV is the Victorian peak body for secondary school career practitioners, work experience coordinators, VET coordinators and MIPS coordinators. The CEAV provides professional development opportunities for members and also works with business, industry, and the education and training sector.



## **Industry Training Australia P/L** - [www.itaust.com.au](http://www.itaust.com.au)

Industry Training Australia (ITA) develops and delivers information and communication services, including the Australian Apprenticeships Pathways website, for service provider networks and the general public.

**For enquiries about this Practice Aptitude Quiz contact the Australian Apprenticeships and Traineeships Information Service on 1800 338 022.**