Practice Aptitude Quiz

GTA
GROUP TRAINING AUSTRALIA
(SA) INCORPORATED

Plumbing

PART 1: About this Plumbing 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 Plumbing and Services 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, TAFE and the secondary school sector as a careers resource.

The quiz focuses on literacy, numeracy, comprehension and problem solving questions contextualised to this specific industry.

The quiz can be utilised by numerous organisations and people such as careers practitioners working with young people, Group Training Organisations and Job Services Australia providers working 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 Mathematics teachers as a guide to industry maths requirements at the entry point of this particular Australian Apprenticeship;
- Used by teachers as classroom based activities for students in Year 11 and 12 VET studies.

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

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

The quiz should be able to be completed in approximately 60 to 90 minutes.

Calculators may be used to complete this practice exercise.

Answers are located at the end of the quiz.

Plumbing Industry Career, Occupational Information and Job Hunting Resources

Information and links on the Plumbing Industry, careers , job prospects as well as career websites and job hunting resources can be found at www.aapathways.com.au/Career-Resources.

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/aac
- Find a local Group Training Organisation - 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/default.aspx

Part 2: The Quiz

Section 1 - Literacy, Reading and Comprehension

Spelling

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

To become a plumber requires compleshion of an apprenticeship in Plumbing, Gasfitting and Draining. Employers genraly require the completion of at least Year 10, with good resolts in English and Maths. You may be able to start training for this vocation wile still at school.

The lenth of trainin can vary and may involve both on-the-job and off-the-job componants. The off-the-job training is provided through Registered Training Organisations.

Plumbing, Gasfitting and Draining are licensed occupasions, which means that in addition to your formel qualifications, a lisence to work must be obtained by your local Licensing Authority.

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

2. Write the correct form of the following words

a. Bathroome _____

b. Inspecter _____

c. Ocupation _____

d. Invioce _____

e. Sprinklar _____

f. Plumming _____

g. Gassfitting _____

h. Drainning _____

i. Coper Pipe _____

j. Sola Heating _____

Comprehension

Read the following article and answer the questions that follow.

Installing a bath

To install a bath an understanding of all relevant Australian Standards and approved fixing methods is required.

The bath may be placed into position at the construction stage (when the building is at the frame stage) or may be left out until the floor, ceiling and walls have been clad. The bath is less likely to be damaged when installed after other trades have completed their work.

If installed during the construction stage, other tradespeople must take care not to damage the bath while under construction. It would be your responsibility to see that it was adequately protected.

Plumbers often have to install a bath in an existing home. This is a much more difficult task than in a building under construction because:

- Pipes need to be installed behind existing wall cladding;
- The bath's waterproofing and support rim must be in behind the wall cladding - this may require extensive work on the wall.

Usually the builder is responsible for levelling, waterproofing and securing the bath, but the plumber must check prior to commencing further work that these are correct. The following steps must be followed:

- Secure the bath;
- Allow adequate clearance for waterproofing to ensure a watertight installation;
- Level the bath.

Questions:

3. Why is it better to place the bath in position after the other trades have completed their work?

_____

_____

_____

4. Usually the builder is responsible for the levelling, provision of waterproofing and securing of the bath. What steps must the plumber check to ensure that these are correct?

_____

_____

_____

5. What must you have a knowledge of to install a bath?

_____

_____

_____

6. Why is it more difficult to install a bath in an existing home?

_____

_____

_____

_____

Read the following article and answer the questions that follow.

The plumbing system of most homes comprises three things, namely the water supply system, the central drainage system, and the fixtures and appliances.

The main supply line makes the water available to all the taps in a home. This is provided either through the municipal corporation or council, or private suppliers. The supplier sets up a meter to measure the amount of water used in the home, and also issues a bill for water used and services delivered.

Generally, in a home, water enters from the main supply into the house. Then the main line is spilt into branches, with one of the two branches forming the supply to the water heater. After this connection is formed, the hot and the cold water lines run parallel to one another. The fixtures and the various appliances that run on this system are connected to these lines.

Drainage systems generally work using gravity. The waste water produced flows downwards through a junction of large sized drain pipes, which then opens into vent pipes. The working of drain waste and vent piping is quite complex. The angle is specified so that the drainage pipes allow the flow of waste water through the sewer system with the help of gravity.

All waste water ultimately reaches the waste stack. From there it flows to the sewer line and exits the house. Sewer gas however is vented through the openings in the roof of the vent.

Plumbing is an essential and constantly used element of every household. Breakdowns in a households plumbing system could create an urgent problem, may cause inconvenience and have the potential to cause damage to property.

QUIZ

Questions:

7. **What three things does the water supply system of most homes comprise of?**

8. **Why is the angle of how pipes are connected important for waste water?**

9. **How is the disposal of waste water and sewer gas different?**

10. **What are the effects of a breakdown in a household plumbing system?**

Section 2 – Mathematical and Comprehension Questions

Numbers (Scientific Notation, Measurement, Number Values)

1. What unit from the list below would you use to measure:

kg	km/hr	$	min
ml	m^2	mm	°C

a. length _____

b. time _____

c. temperature _____

d. weight _____

e. area _____

f. speed _____

g. volume _____

h. cost _____

2. From the list of numbers below, select the one which is a:

3/8	25%	16.37
35°	5:4	3¼

a. percentage _____

b. decimal number _____

c. fraction _____

d. mixed number _____

e. ratio _____

f. angle _____

3. Write as a number:

a. two thousand six hundred and thirty four _____

b. fifty six thousand and eighty seven _____

4. 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 _____

5. One day Peter worked 6 hrs and 35 min and on another day 4 hrs and 40 min. What was the total time Peter worked?

_____

6. Jane the building clerk started work at 11:30a m and finished at 2:10 pm. How long did she work for?

_____

Arithmetic (Addition, Subtraction, Multiplication, Division)

7. Find the total of:

a. $2 + $21.45 + $8.23 _____

b. 18.32 + 471.019 + 315 _____

c. 2.63 m + 50 cm _____

8. Subtract:

a. 1,784 from 5,218 _____

b. 29.461 from 43.18 _____

9. Multiply:

a. 6.87 x 10 _____

b. 13.8 x 3 _____

c. 46.2 x 8.5 _____

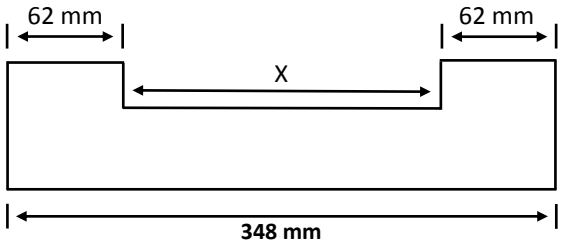
10. Divide:

a. 3.45 ÷ 10 _____

b. 3024 ÷ 14 _____

c. 56.2 ÷ 0.2 _____

11. Find the value of x from the drawing.



X = _____

12. Which fraction is between ¼ and ¾? (Circle correct response)

a. ½

b. ⅛

c. ⅞

d. 3¼

13. Evaluate the following:

a. What is 10% of $44 _____

b. What is 25% of 12.84 _____

14. Which represents the best buy? (Circle the correct response)

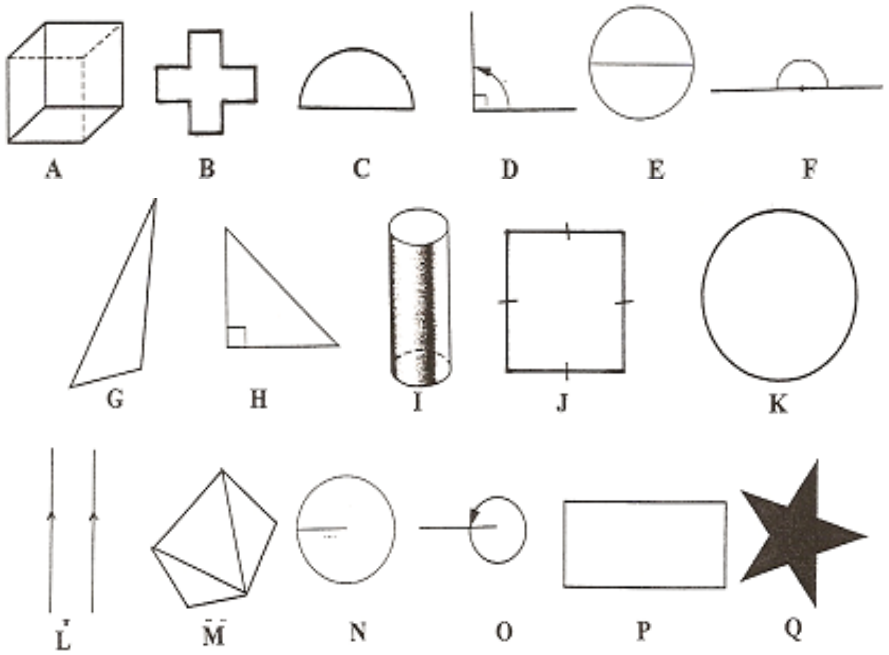
a. 3 kg for $4.00

b. 15 kg for $57.00

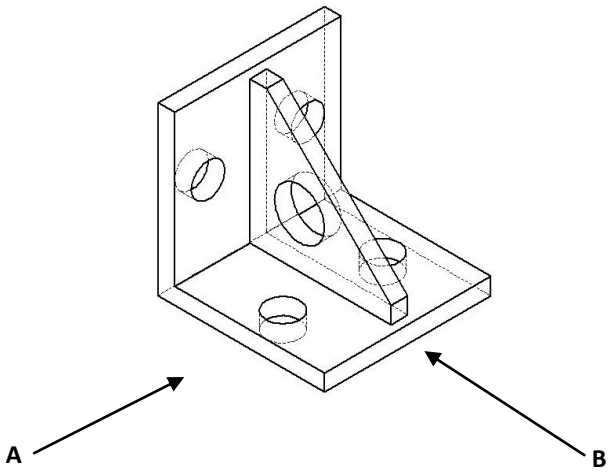
Shapes

15. a. Which shape best represents:

i.	circle	
ii.	triangle	
iii.	rectangle	
iv.	square	
v.	semicircle	
vi.	parallel lines	
vii.	cross	
viii.	star	
ix.	cube	
x.	cylinder	
xi.	diagonal	
xii.	right angle	
xiii.	revolution	
xiv.	right angled triangle	
xv.	straight angle	
xvi.	circle and diameter	
xvii.	circle and radius	



b.



In the space provided below do two freehand drawings of the object above. Make your drawings of what the object would look like if you were standing at the points A and B.

Point A

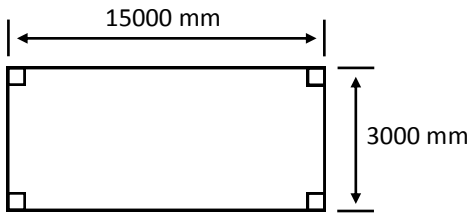
Point B

Perimeter, Area

16. A tiler estimates there are 55 tiles to the square metre. How many tiles are needed for a 6 square metres wall?

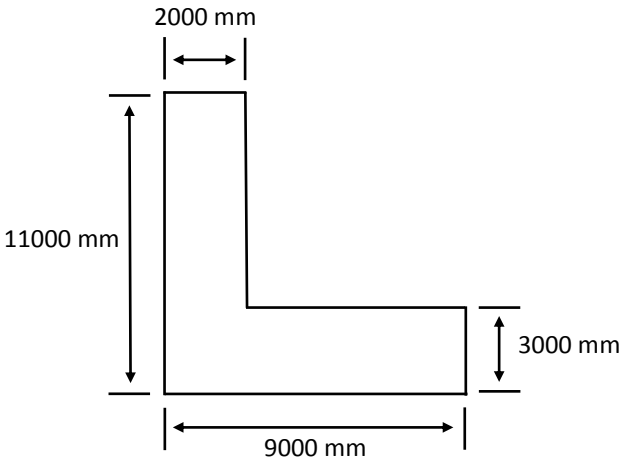
_____

17. a.



Perimeter _____

b.



Perimeter _____

Problem Solving

18. If a car is traveling at 60 km per hr, how far will it travel in 3 hours?

_____

19. Calculate the cost of 40 hinges at $3.00 a pair?

_____

20. What is the average of 12, 9 and 18?

_____

21. Two numbers add up to 40. Find the other number if one of the numbers is 15?

_____

22. **John, a first year apprentice earns $8.15 per hour for a 40-hour week. Find his weekly wage?**

_____

23. **If one stepladder costs $98.00 how much would six stepladders cost?**

_____

24. **Find the missing numbers in the following:**

a. 20 25 30 35 ? _____

b. 3 9 27 ? _____

c. 4 8 12 16 ? _____

d. 10 3 11 ? 12 5 _____

e. 64 32 16 ? 4 _____

25. **Plastic water pipe costs $19.00 for a 6 metre length. How many lengths of pipe could I buy for $171.00?**

_____

26. **A lunch bill was divided equally among 6 people. The total of the bill was $48.60.**

a. How much did each pay?

_____

b. If Tuesday is half price day, how much will each pay?

_____

27. **Perry is a plumber and earns $25.00 an hour for a normal 40 hour week. For any overtime, he receives time-and-a-half. How much does he receive for working 42 hours?**

_____

28. **Five litres of glue for jointing water pipe costs $65.00. How much will 1 litre cost?**

_____

29. Janni's yearly salary is $45,000.00. Calculate his:

a. monthly wage _____

b. weekly wage _____

30. Huynh is a Plumber's Assistant and is paid $15.00 per hour plus time and a half for any hours over 35 hours. If he worked 42 hours, what was his pay for:

a. the first 35 hours work _____

b. the overtime work only _____

c. total pay _____

31. My car uses 18 litres of petrol every 300 kilometres. What is the rate of petrol consumption in litre per 100 km?

_____

32. A 3,600 litre water tank is a ¼ full.

a. How much water is in the tank? _____

b. How much is empty space? _____

33. Read the following about Personal Protective Equipment (PPE) and then answer the questions that follow.

Personal protective clothing, overalls, hand protection and foot protection are often necessary and respiratory protective equipment may be required when dangerous gases and dusts are present.

Personal protective equipment (PPE) includes clothing, equipment and substances designed to be worn by a person to protect them from risks of injury or disease.

PPE is only to be used in the workplace where it is not reasonably practicable to control hazards by other means.

The information on the following page describes some PPE used to guard workers against specific hazards.

QUIZ

Gloves

Photo A

Breathing Mask

Photo B

Goggles

Photo C

Sign A

Sign B

Sign C

Sign D

Part of Body	**Some Potential Hazards**
Head	Falling objects
Face & Eyes	chemical splashes, fumes, sewage splashes,
Hearing:	Excessive noise
Respiratory:	Dust, fumes, vapours, concrete dust
Hands:	Abrasion, irritant substances, vibration , electric shock
Feet:	Crushing, slipping, abrasion, irritant substances, wetness, electric shock, static electricity, puncture, cold/heat

Questions

a. **Measuring and sawing overhead PVC pipe is common in the plumbing industry. What PPE would you use to perform this task?**

_____

b. **When jackhammering concrete, chunks may fly up and concrete dust is in the air. What PPE is of use in this situation?**

_____

c. **Unblocking a sewer occurs regularly in the life of a plumber. What PPE helps protect a worker in this situation?**

_____

ANSWERS

QUIZ

Section 1 - Literacy, Reading & Comprehension Questions

1. completion, generally, results, while, length, training, components, occupations, formal, licence

2. Bathroom, Inspector, Occupation, Invoice, Sprinkler, Plumbing, Gasfitting, Draining, Copper Pipe, Solar Heating

3. The bath is less likely to be damaged.
Could add - other tradesmen do not have to worry about damaging the bath while completing their work, do not have to protect the bath while other work is being completed.

4. The plumber must ensure that the bath is secured into position, that there is adequate clearance for waterproofing to ensure a watertight installation and that the bath is level.

5. All relevant Australian Standards and approved fixing methods.

6. It is more difficult to install a bath in an existing home because pipes need to be installed behind wall cladding and the baths waterproofing and support rim must be in behind the wall cladding which may require extensive work on the wall.
Further explanation of what these mean could be written.

7. The water supply system, the central drainage system and the fixtures and the appliances.

8. The angle is specified so that the drainage pipes allow the flow of waste water through the sewer system with the help of gravity.

9. All waste water ultimately reaches the waste stack. From there it flows to the sewer line and exits the house. Sewer gas, however, is vented through the openings in the roof of the vent.

10. Breakdowns in a households plumbing system could create an urgent problem, may cause inconvenience and have the potential to cause damage to property.

Section 2 – Mathematics

1. mm, min, °C, kg, m², km/hr, ml, $

2. 25%, 16.37, 3/8, 3 ¼ , 5:4, 35°

3. **a.** 2,634 **b.** 56,087

4. **a.** 241 cents **b.** 26 weeks **c.** 10,812 seconds **d.** 8000 m **e.** 3500 g

5. 11 hours and 15 minutes

6. 2 hours and 40 minutes

7. **a.** $31.68 **b.** 804.339 **c.** 3.13 m or 313 cm

8. **a.** 3,434 **b.** 13.719

9. **a.** 68.7 **b.** 41.4 **c.** 392.7

10. **a.** .345 **b.** 216 **c.** 281

11. 224 mm

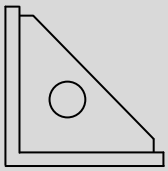
12. **a.** ½

13. **a.** $4.40 **b.** 3.21

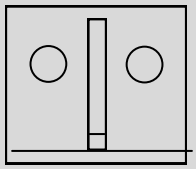
14. **a.** 3 kg for $4.00

15. **a.** i. K, ii. G, iii. P, iv. J, v. C, vi. L, vii. B, viii. Q, ix. A, x. I, xi. M, xii. D, xiii. O, xiv. H, xv. F, xvi. E, xvii. N

b.



SIDE A



SIDE B

16 330 bricks

17. **a.** 36,000 mm **b.** 40,000 mm

18. 180 km

19. $60

20. 13

21. 25

22. $326

23. $588

24. **a.** 40 **b.** 81 **c.** 20 **d.** 4 **e.** 8

25. 9

26. **a.** $8.10 **b.** $4.05

27. $1075.00

28. $13

29. **a.** $3,750 **b.** $865.40

30. **a.** $525 **b.** $157.50 **c.** $682.50

31. 6 litres per 100 km

32. **a.** 900 litres **b.** 2700 litres

33. **a.** goggles, gloves
b. goggles, gloves, hearing protection, foot protection, breathing mask
c. goggles, gloves, foot protection

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
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
- ATEC Group Training - www.atec.asn.au
- Australian Industry Group Training Services - www.aigts.com.au
- Career Employment Group - www.ceg.net.au
- Group Training Employment - www.gte.org.au
- Hospitality Group Training - www.hospitalitysa.com.au
- Maxima Group Training - www.maxima.com.au
- Motor Trade Association Group Training Scheme - www.mta-sa.asn.au/wcm/tec
- Murraylands Training & Employment Association of SA Inc - www.mteasa.com.au
- PEER VEET - www.peer.com.au
- Plumbing Industry Association Group Training - www.piasa.com.au
- SMGT Total Employment Solutions - www.smgt.com.au
- Statewide Group Training - Torrensville - www.statewidegrouptraining.com.au
- Trainee and Apprentice Training Service Inc (TAPS) - www.tapssa.com.au

With specific thanks to:

Trainee and Apprentice Training Service Inc (TAPS) - www.tapssa.com.au
TAPS (Trainee & Apprentice Placement Service) is an independent Plumbing and Roofing Industry Group Training Organisation. We employ, monitor, train and supply Quality Endorsed Apprentices to Host Employers under a flexible work arrangement. TAPS is an easy and cost effective alternative to employing your own Apprentices. We do all the paperwork, arrange the training and on going support for the Apprentice.
Wherever you want to go with your Plumbing & Roof Plumbing career TAPS can get you there.

The Plumbing Industry Association of SA Inc - www.piasa.com.au
The Plumbing Industry Association of SA Inc. is the peak industry association representing Licensed Plumbers and Gasfitters, and affiliated members including Merchants and Manufacturers of Plumbing hardware. The Association has a group training service supplying and mentoring quality plumbing apprentices, to ensure the industry has a continuing supply of skilled tradespeople, and its members are able to sustain viable businesses.

Australian Apprenticeships Pathways Website - 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 Industry.

Construction and Property Services Industry Skills Council - 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
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
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.