

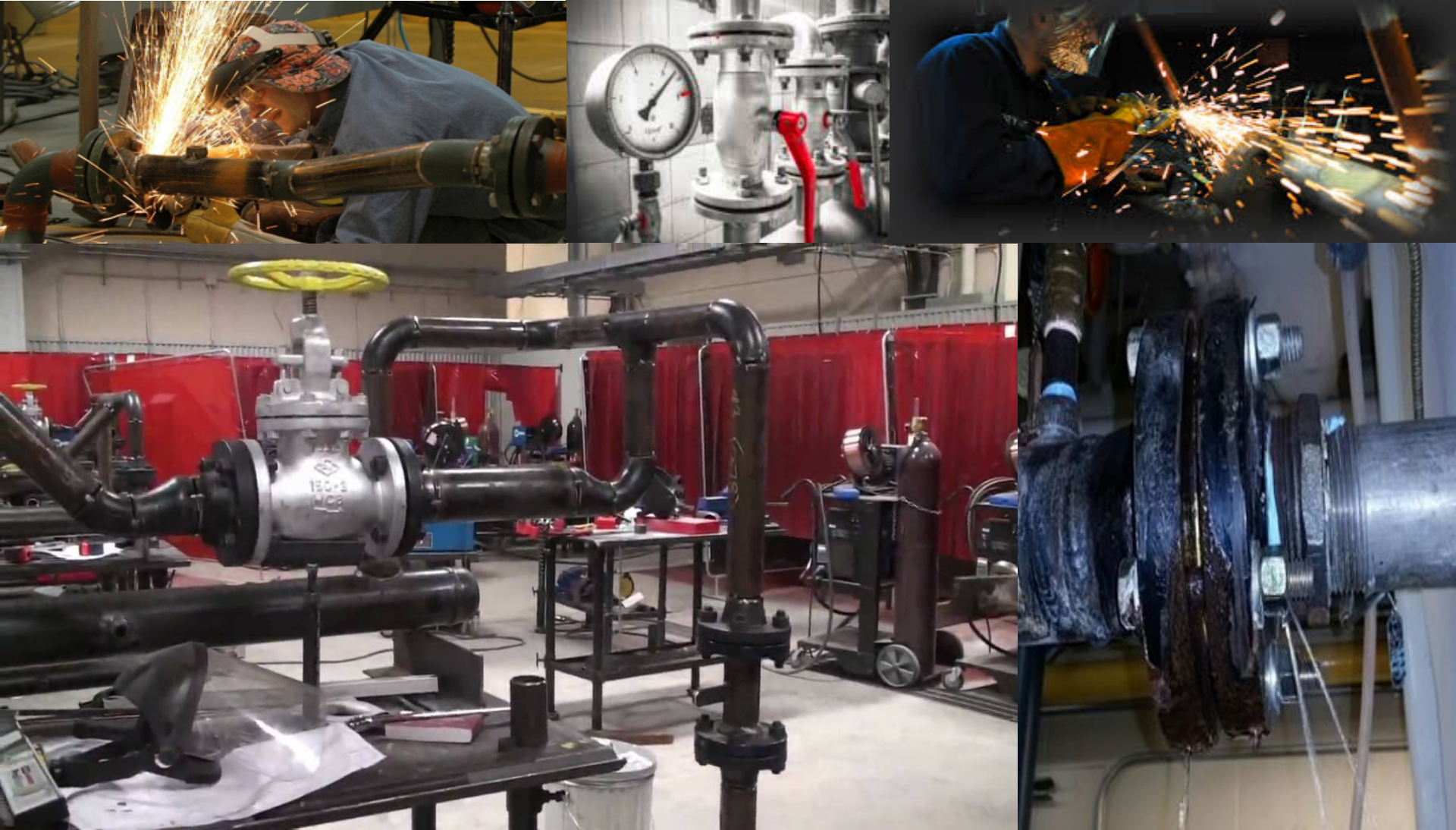
Building Operations Steamfitting Apprenticeship



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

What you can expect to learn and accomplish



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Industry Training Authority (ITA)

Manages the apprenticeship system and certifies skilled trades

- Most apprentices take four years to complete, with 80% of the learning taking place at the worksite and 20% with an ITA-recognized training provider.
- An apprenticeship is a work-then-school cycle repeated each year for about four years



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA



INDUSTRY TRAINING PROGRAM PROFILE ACCREDITED PROGRAM



STEAMFITTER/PIPEFITTER

Occupation Description

“Steamfitter/Pipefitter” means a person who installs, alters, or repairs steam and hot water boilers and system for generation and conveyance of steam and hot water and process piping systems in industrial project of manufacturing plants.

For detailed information on the scope of knowledge and skills taught and assessed in this program refer to the Program Outline, available on the ITA website.

Recommended Education

The following education is recommended for apprentices entering this occupation. These are not prerequisites, but rather a desired level of skill or knowledge that will contribute to success in the industry.

- Grade 12 or equivalent including English 12, Algebra 11 or Trade Mathematics 11 and Physics 11 or Science and Technology 11



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

About the trades pre-entry test

The Trades Pre-entry Tests are designed to show that you have the necessary academic skills to succeed in your trades or technical studies program.

Pre-entry tests

[Reading Comprehension](#)

[Mathematics](#)

[Mechanical Reasoning](#)

[Physics](#)



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

About the trades pre-entry test

Reading Comprehension

- 5 readings, 40 multiple-choice questions
- 45 minute time limit
- Sample questions: - http://www.bcit.ca/files/tlc/pdf/tlc_sampletest_reading.pdf



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Example of Reading Comprehension Practice Test

FULL TWO YEAR WARRANTY ON CRAFTSMAN TOOL

If this Craftsman tool fails to operate within two years from the date of purchase, return it to the nearest Sears Canada Inc. ("Sears") store and "Sears" will repair it, free of charge.

If this tool is used for commercial or rental purposes this warranty applies only for 90 days from the date of purchase.

This warranty is in addition to any statutory warranty.

SEARS CANADAINC., TORONTO, CANADA, M5B 2B8

INTRODUCTION

DOUBLE INSULATION is a concept in safety in electric power tools, which eliminates the need for the visual three wire grounded power cord and grounded supply system. Whenever there is electric current in the tool there are two complete sets of insulation to protect the user. All exposed metal parts are isolated from the internal metal motor components with protecting insulation.

IMPORTANT – Servicing of a tool with double insulation requires extreme care and knowledge of the system and should be performed only by a qualified service technician. For service we suggest you return the tool to your nearest Sears Store for repair. Always use original factory replacement parts when servicing.

RULES FOR SAFE OPERATION

WARNING - DO NOT ATTEMPT TO OPERATE UNTIL YOU HAVE READ THOROUGHLY AND UNDERSTAND COMPLETELY ALL INSTRUCTIONS, RULES, ETC. CONTAINED IN THIS MANUAL. FAILURE TO COMPLY CAN RESULT IN ACCIDENTS INVOLVING FIRE, ELECTRIC SHOCK, OR SERIOUS PERSONAL INJURY. SAVE OWNER'S MANUAL AND REVIEW FREQUENTLY FOR CONTINUING SAFE OPERATION, AND INSTRUCTING POSSIBLE THIRD-PARTY USER.



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

If the drill is used for commercial or rental purposes, how much shorter is the warranty?

- A. 20 months
- B. 21 months
- C. 22 months
- D. 23 months

Double insulation eliminates the need for:

- A. Three wire grounded power cord
- B. Insulation in the walls
- C. Safety glasses
- D. Batteries

Sears Canada Inc has their head office located in

- A. Vancouver
- B. Montreal
- C. Halifax
- D. Toronto

Double insulation means

- A. Tools are protected from the cold
- B. Exposed metal parts are isolated from the internal motor
- C. The power cord has a specific ground prong
- D. Sears will pay double if the tool breaks



About the trades pre-entry test

Mathematics

- 42 multiple-choice questions
- 45 minute time limit
- Sample questions: - http://www.bcit.ca/files/tlc/pdf/tlc_sampletest_math.pdf



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Example of Math Practice Test

Whole Numbers:

1. $254 + 9652 + 36 + 5276 =$
a. 15,218 b. 13,872 c. 15,209 d. 12,518
2. $65 \times 367 =$
a. 28355 b. 25388 c. 23855 d. 32855
3. $9426 - 458 =$
a. 8698 b. 8968 c. 896 d. 9869
4. $671 \div 38 =$
a. 16.325 b. 14.587 c. 15.982 d. 17.658

Fractions:

1. $18\frac{1}{2} + 5\frac{4}{5} =$
a. $23\frac{5}{7}$ b. $23\frac{5}{10}$ c. $24\frac{3}{10}$ d. $24\frac{3}{4}$
2. $17\frac{1}{8} - 12\frac{1}{4} =$
a. $4\frac{7}{8}$ b. $3\frac{9}{16}$ c. $\frac{23}{64}$ d. $3\frac{5}{8}$
3. $2\frac{1}{2} \times 3\frac{5}{8} =$
a. 9 b. $9\frac{1}{16}$ c. $9\frac{3}{8}$ d. $6\frac{5}{16}$
4. $13\frac{11}{15} \div 5 =$
a. $2\frac{3}{8}$ b. $3\frac{7}{15}$ c. $2\frac{32}{53}$ d. $2\frac{56}{75}$



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

2. If a 3 meter tall round water tank filled to the 3 meter level holds 20 kL of water, how many kL of water would the tank hold if filled to the 2 meter level?
 a. 13.5 kL b. $13\frac{3}{4}$ kL c. 13.3 kL d. 15 L
3. A 4.3" diameter pulley turns at 1725 RPM; how fast does a pulley, 2.78" in diameter, turn if they are connected by a drive belt? (to the nearest whole number).
 a. 2668 RPM b. 1115 c. 3245 d. 267
4. 40' of $\frac{3}{4}$ " steel tubing costs \$147.35. How much does 18' cost?
 a. \$327.45 b. \$66.31 c. \$73.68 d. \$81.86
5. A concrete fastener is fired at 98 meters per second. Convert this speed to km/h.
 a. 3.528 b. 35.28 c. 352.8 d. 3528

Algebra

1. $R = \frac{12(M^3)}{T}$ when $M = 8$ and $T = 16$. What does R equal?
 a. 384 b. 3072 c. 864 d. 3456
2. If $\frac{11}{16} \times Y = 14$, then $Y =$
 a. $14\frac{11}{16}$ b. 20.36 c. 9.625 d. $\frac{11Y}{16}$
3. $6R \times S = B + D$ $R =$
 a. $B + D \times 6S$ b. $\frac{B + D6}{S}$ c. $\frac{B + D}{6S}$ d. $6B + D \div S$
4. Which equation is NOT correct?
 a. $\frac{R + T}{Y} = \frac{R}{Y} + \frac{T}{Y}$ b. $(F + Q)P = F + QP$ c. $GX - GU = G(X - U)$ d. $\frac{L}{S \times M} = L \div SM$



About the trades pre-entry test

Mechanical Reasoning

- 48 multiple-choice questions
- 45 minute time limit
- Sample questions: - http://www.bcit.ca/files/tlc/pdf/tlc_sampletest_mechreasoning.pdf



a place of mind

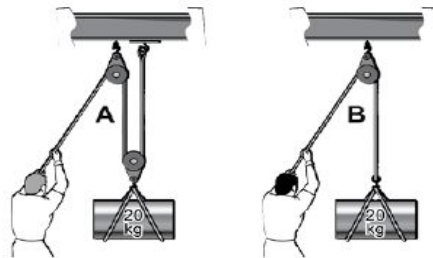
THE UNIVERSITY OF BRITISH COLUMBIA

Example of Mechanical Reasoning Practice Test

SAMPLE MECHANICAL REASONING TEST

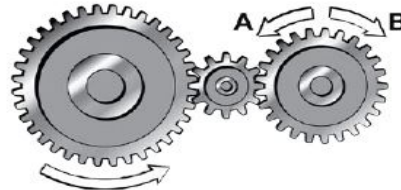
This is a sample test for you to get prepared for the 'real' Mechanical Reasoning test for BCIT Trades Programs. (Test has 70 questions with a time limit of 60 minutes).

1



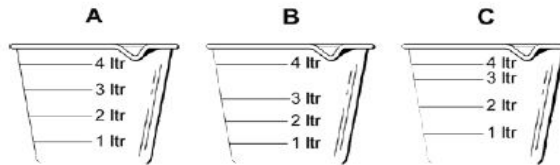
Which person must pull harder to lift the weight?
(If no difference, mark C.)

2



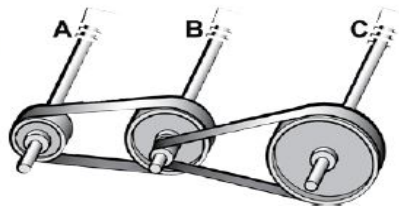
When the left-hand gear turns in the direction shown, which way does the right-hand one turn?
(If either, mark C.)

3



Which measure is marked properly?

4



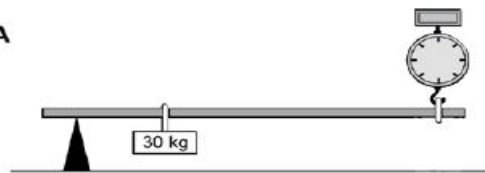
Which shaft will turn most quickly?



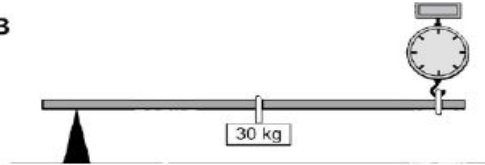
a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

5 A

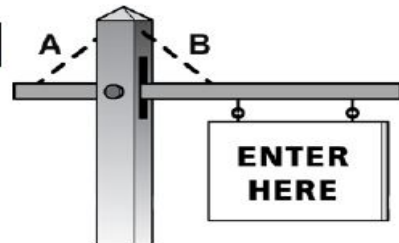


B



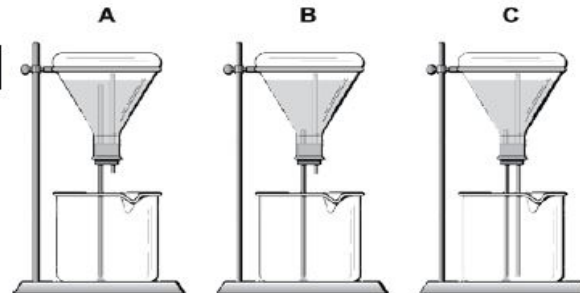
In which picture will the scales read lower (less weight)?
(If equal mark C.)

6



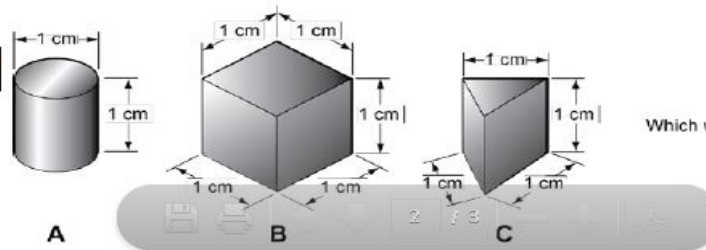
Where should a chain be attached to hold up the sign?
(If either, mark C.)

7



Which system will let the most water run out?

8



Which weighs most?



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

About the trades pre-entry test

Physics

- 11 questions worth 33 marks
- 30 minute time limit
- Sample questions: - http://www.bcit.ca/files/tlc/pdf/tlc_physics_tuneup.pdf



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Example of Physics Practice Test

Physics Assessment Tune-up

Calculators are permitted and formula sheet supplied for the test.

You may also telephone BCIT at 604-451-6832 for more information.

1. A wooden raft, 5-feet long and 4-feet wide, floats in water. When a person steps on the raft, it sinks 1.5 inches deeper into the water. Calculate the person's weight. Density of water: 62.4 lb/ft^3 .
2. Find the specific gravity of a substance that has a mass of 148.5 g and a volume of 30.5 cm^3 .
3. At 100°C a gas occupies a volume of 2.5 m^3 . What will be its volume at 0°C ?
4. A steel plate measures $3' \times 5'$. If the pressure is 30 lb/in^2 , calculate the force on the plate.
5. A car accelerates from a velocity of 15 m/sec to 25 m/sec in 2 seconds. Calculate the acceleration.
6. A man carries a load of 50 Kg to a height of 15 m in 5 minutes. Calculate a) the work done, b) the power extended.
7. A truck changes its velocity from 30 m/s to 10 m/s in 5 seconds. How far does it travel during the change?
8. A 3000-Kg is hoisted 2 m above the ground. Calculate its potential energy.
9. A force of 3000 N moves a mass of 500 Kg a distance of 8 m in 15 seconds. How much work has been done?



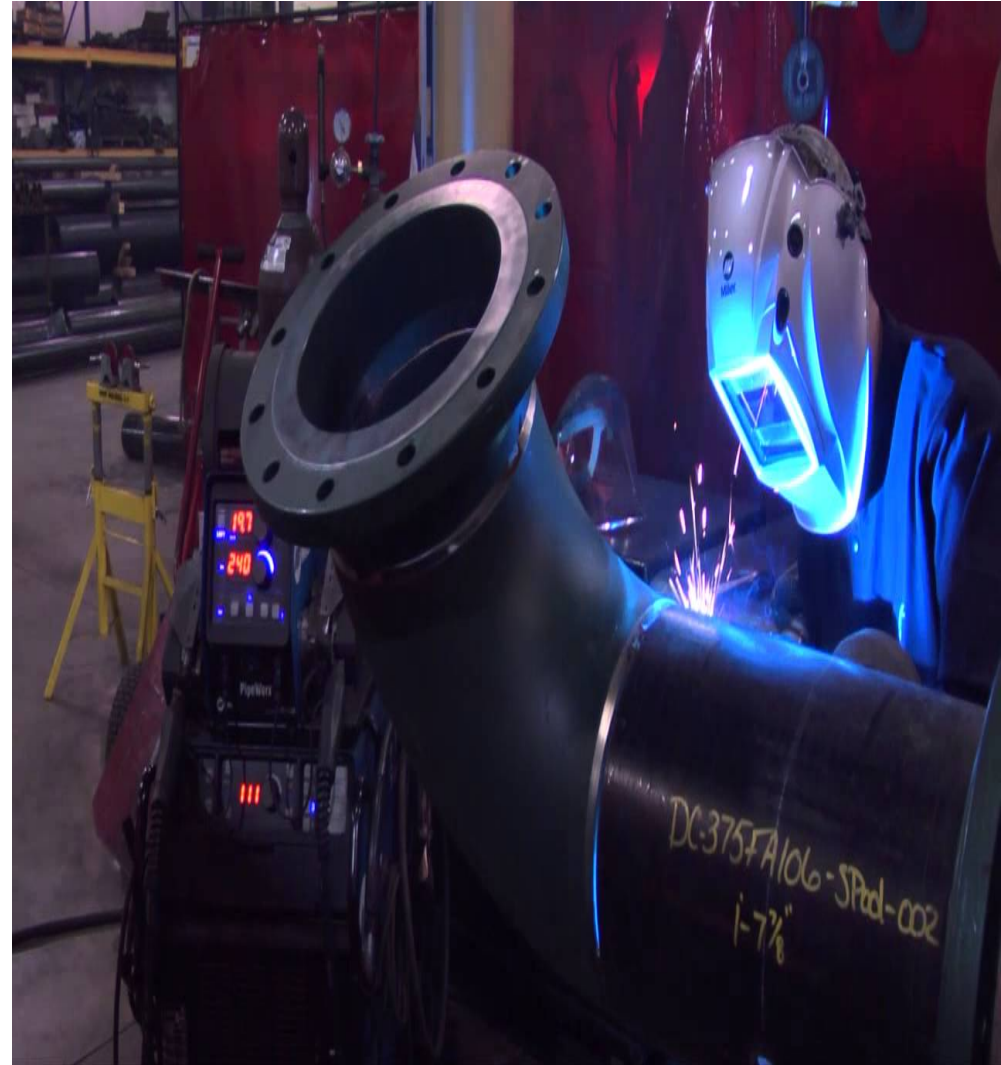
So, if your interested in piping...



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

So, if your interested in fitting...



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Steamfitting may be the career for you



UNION PLUMBERS,
FITTERS, WELDERS AND
SERVICE TECHNICIANS

PIPE FITTER

PIPEFITTER
BECAUSE
BADASS
ISN'T AN OFFICIAL
JOB TITLE



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Leaders

Mike Kupfer - Head steamfitter, Building Operations

Mike Carroll - Head steamfitter, Utilities

Brennan Sekora - Project Coordinator, Energy and Water



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Questions??



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA