BCIT's Trades Math "Tune-Up"

The first thing to remember is everyone's Math skills get weak after they leave school! However, it is surprising how quickly the Math you learned comes back to you. In most cases all you need to do is practice.

This workbook will help you tune-up your Math skills before you write the pre-entry test. If you find you cannot do a certain kind of question we suggest you go to your local library and look for a basic mathematics book that you feel comfortable with. This type of book will help you work through those questions you find difficult. If you work better in a class than on your own, call your local high school or community college to see if they offer Math upgrading courses.

You may also telephone BCIT at 604.451.6832 for more information.

Once you start your training at BCIT you may find that Math is not so difficult because it is applied. Using Math to read a micrometer in the machine shop, or to cut rafters for a roof gives numbers some meaning. However, it is important to have solid basic Math skills before you begin your training. We hope this booklet helps you prepare.

Calculators are permitted.
Answers on last panel.

I. WHOLE NUMBERS

1. 8764 + 875 + 2362 + 7407 =
2. 2000 - 892 =
3. 764 x 59 =
4. 7237 ÷ 43 =
5. Is the sum of 3765 and 5673 greater than the difference between 32650 and 25342?
   a) yes b) no

II. FRACTIONS (answers as fractions)

6. 18 1/2 + 15 4/5 =
7. 17 1/8 - 12 1/4 =
8. 2 1/2 ÷ 3 3/4 =
9. Which of the following fractions is the smallest?
   a) 3/4
   b) 7/8
   c) 9/16
   d) 17/32

III. DECIMALS

10. 18.2 x 0.064 =
11. 38.54 ÷ 8.2 =
12. 13 + 3.72 + 0.7 + 606.1 =
13. Write 0.357 as a common fraction.
14. Express 4 5/8 as a decimal number.

IV. METRIC

15. 65 mm = _____ m
16. 1.8 kg = _____ g
17. If 1" = 25.4 mm, then 1' 2" = _____ mm
18. Convert 1425 mm^2 to m^2
19. A 4 ft. x 8 ft. sheet of plywood is equivalent to what dimensions (to one decimal place) in metres?

V. RATIO AND PROPORTION

20. If $\frac{N}{16} = \frac{3}{4}$, N =
21. If a 3 metre high round water tank filled to the 3 metre level holds 20 kL of water, how may kL of water would the tank hold filled to the 2 metre level?
22. A particular machine has a 4.3" diameter pulley that turns at 1725 RPM; how fast does another pulley, 2.78" in diameter, turn if they are connected by a drive belt (to the nearest whole number).

VI. PERCENT

23. 5% of $25.30 =
24. What percent of 140 is 7?
25. Write $13\frac{3}{4}$ % as a decimal.
26. Express $\frac{3}{5}$ % as a fraction.
27. If a person's wage was increased by 5% and the old rate was $10.00 per hour, how much would now be earned for 8 hours of work?

VII. ROOTS AND POWERS

28. 0.5^2 =

29. $\sqrt{3.24}$ =

30. Which of the following numbers is the largest?
    a) $\sqrt{625}$
    b) 2^4
    c) 4^2
    d) 3^3

VIII. ALGEBRA

31. If 27 = 8N - 5, then N =

32. If $I = \frac{E}{R}$, then E =

33. If $\frac{2X}{3} + 2 = 7$, then x =

34. If $\frac{5}{9}$ (F - 32°) = C, Calculate C when F = 68°

35. A machinist needs to use two shims with a combined thickness of 0.084. One shim is to be three times as thick as the other. What are the thicknesses of the shims?

IX. CIRCUMFERENCE, AREA AND VOLUME (π = 3.14)

36. A circle has a radius of 5 m.
    a) Find its circumference

    b) Find its area

37. Calculate the volume of a box that measures 1.8 m x 1.2 m x 0.85 m

38. A rectangle is 12 ft. x 5 ft. Calculate its diagonal.

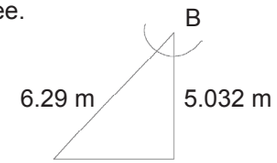
39. A round cylindrical water tank 10 m high has a volume of 125.6 m^3. Find the diameter of the tank to the nearest whole number.

Optional Study

This section is **not required** to pass the BCIT trades pre-test, but it presents skills that **are necessary** for success in many trades.

X. TRIGONOMETRY

40. Find angle "B" in the diagram, to the nearest degree.



XI. NOTATION WITH POWERS OF TEN

41. For the electrical formula, Voltage = Amps x Ohms; find voltage, if current measures 3x10-3 Amps, and resistance is measured as 5 K.Ohms

Answers to the Math questions:

I. WHOLE NUMBERS
1. 19408 **2.** 1108 **3.** 45076
4. 168 and 13 remainder or 168.302
5. a) yes

II. FRACTIONS
6. $34\frac{3}{10}$ **7.** $4\frac{7}{8}$ **8.** $\frac{2}{3}$ **9.** d) $\frac{17}{32}$

III. DECIMALS
10. 1.1648 **11.** 4.7 **12.** 623.52
13. $\frac{357}{1000}$ **14.** 4.625

IV. METRIC
15. .065 **16.** 1800 **17.** 355.6
18. 0.001425 m^2 **19.** 1.2 m x 2.4 m

V. RATIO AND PROPORTION
20. 12 **21.** $13\frac{1}{3}$ kL or 13.3 kL
22. 2668 RPM

VI. PERCENT
23. 1.27 **24.** 5% **25.** 0.1375
26. $\frac{3}{500}$ **27.** $84.00

VII. ROOTS AND POWERS
28. 0.25 **29.** 1.8 **30.** d)

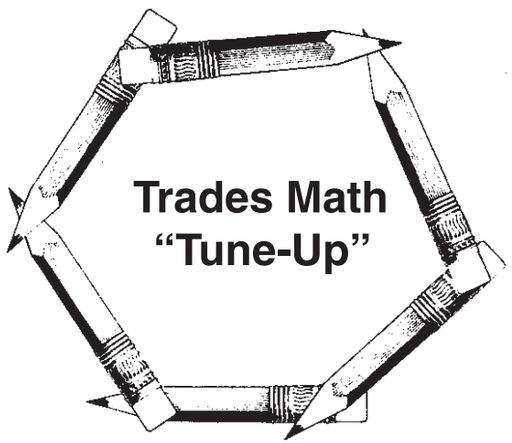
VIII. ALGEBRA
31. 4 **32.** IR **33.** 7.5
34. 20 **35.** 0.021 in. and 0.063 in.

IX. MENSURATION
36. a) 31.4 m b) 78.5 m^2 **37.** 1.84 m^3
38. 13 ft. **39.** 4 m

X. TRIGONOMETRY
40. 37°

XI. NOTATION WITH POWERS OF TEN
41. 15 Volts

Trades Learning Centre



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