Name: _____

Course End Review
MAP 4C

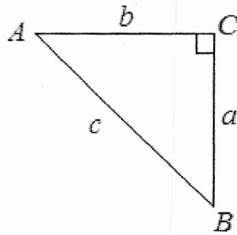## Trigonometry

1.   Choose the angle that has negative cosine.   1._____
   (a)   32°   (b)   72°
   (c)   61°   (d)   112°

2.   Choose the negative ratio.   2._____
   (a) $\sin 150°$ (b) $\tan 73°$
   (c) $\cos 108°$ (d) $\cos 18°$

3.   Choose the best description of the following ratios.   3._____
   i. $\sin 78°$
   ii. $\sin 101°$
   iii. $\sin 28°$
   (a)   ii is negative.   (b)   i, ii, and iii are positive.
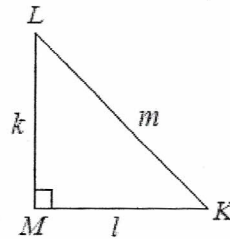   (c)   i, ii, and iii are negative. (d)   i and iii are negative.

4.   Name the side opposite $\angle A$ 4._____

   (a)   AC
   (b) c
   (c)   BC
   (d)   B

5.   Write $\cos L$ as a ratio of sides.   5._____
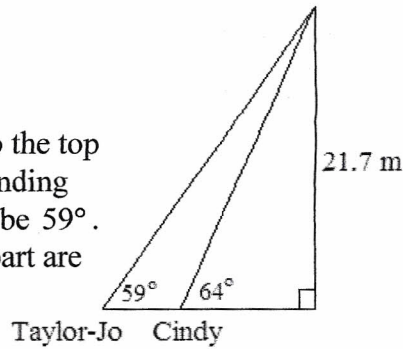
   (a) $\dfrac{l}{m}$ (b) $\dfrac{k}{m}$

   (c) $\dfrac{m}{k}$ (c) $\dfrac{k}{l}$

6.   Choose the negative ratio.   6._____
   (a) $\sin 146°$ (b) $\tan 76°$
   (c) $\cos 101°$ (d) $\cos 20°$
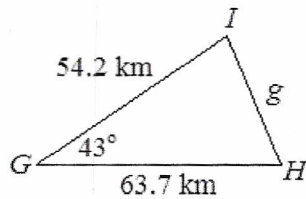
7.   Given $\tan P = -0.2679$, determine the measure of $\angle P$ 7._____
        to the nearest degree.

8.   Cindy measures the angle of elevation to the top
      of a flagpole to be 64°. Taylor-Jo is standing
      behind Cindy and measures the angle to be 59°.
      The flagpole is 21.7 m high. How far apart are
      Cindy and Taylor-Jo?
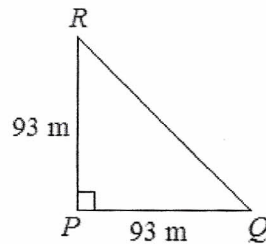
21.7 m

59° 64°

Taylor-Jo Cindy

8. _____

9.   Determine the indicated length, *g*.

I

54.2 km

g

43°

G

63.7 km

H

9. _____

10.   Determine the measure ∠*R*.

R

93 m

P   93 m   Q

10. _____

11.   A ladder leans against a wall making an angle of 73° with the
      ground. The ladder's base is 1.17 m away from the wall.
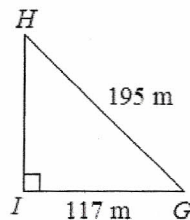   (a)   Determine the length of the ladder.

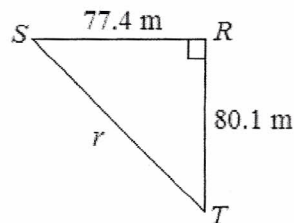   (b)   How high up the wall does the ladder reach

11(a) _____

11(b) _____

12.   Determine the measure of ∠*G*.

H

195 m

I   117 m   G

12. _____

13.   Use Pythagorean Theorem to determine the missing side
      in $\triangle RST$.

S   77.4 m   R

r

80.1 m

T

13. _____

14.   Find the ∠A , to the nearest degree.

88.7 km
B _____ C

231. 1 km   257.4 km

A
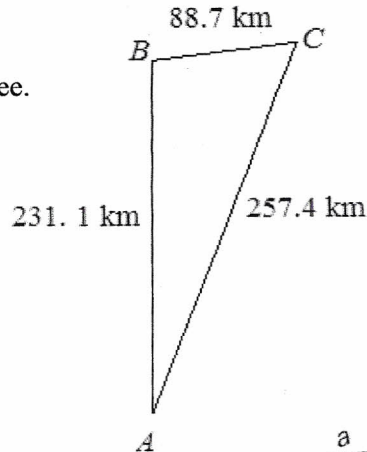
14. _____

15.   Find the length of side *a*, to the nearest centimeter.

B   a   C

18 cm   32°   15 cm

A
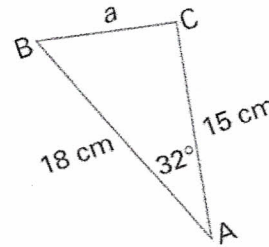
15. _____

16.   Determine ∠B and ∠C .
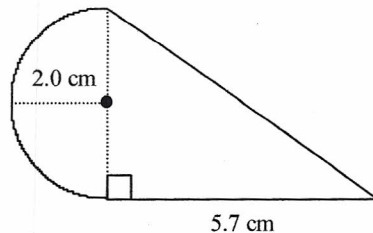
C
12.5 cm   4.2 cm
38°   A
B
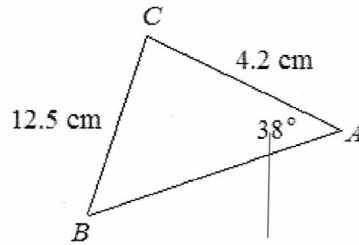
16 (a) _____

16 (b) _____

Geometry

17.   Determine the area of the composite figure. The curve is a semicircle.

2.0 cm

5.7 cm

17. _____

18.   A can of tuna fish has a diameter 11.4 cm and height 3.7 cm. Cans are packed snugly for shipping in boxes containing 4 layers of 5 rows by 7. How much empty space does each box contain?
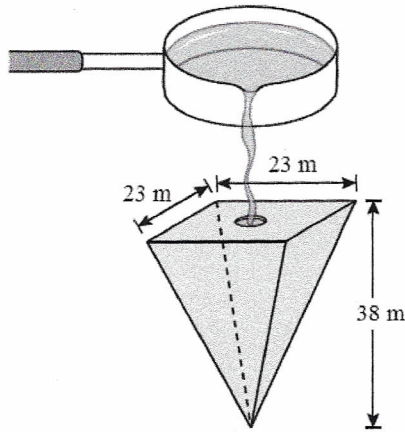
18. _____

19.   Given the circle, determine:
       (a)   the perimeter (circumference)

12.5 m

       (b)   the area

19(a) _____

19(b) _____

20. The mould shown below is used to make a candle in the shape of a square-based pyramid. What is the volume of the mould?

20. _____

21. A half-cylinder has diameter 23 m and height 55 m. Determine the volume of the half-cylinder.
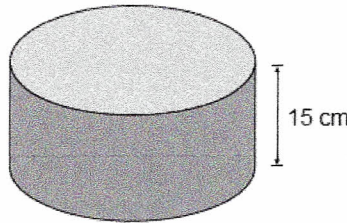
21. _____

22. The volume of a cylinder is 2400 cm³ and the height is 6 cm. Find the radius of the cylinder to the nearest tenth.

22. _____

23. Find the radius of a circle with circumference of 7.536 cm.

23. _____

24. A cylindrical can has volume of 19 cm³ and has a height of 15 cm. Determine the radius of this cylindrical can to 2 decimal places.

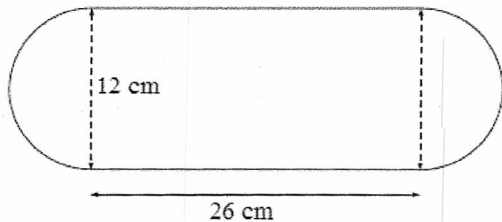24. _____

25. The formula $V = \dfrac{1}{3}\pi r^2 h$ gives the volume of a cone with radius r and height h. Use the formula to determine the radius of a cone with volume 457 cm³ and height 12 cm.
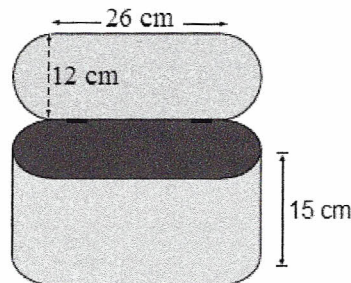
25. _____

26. Determine the area of the composite figure below.

26. _____

27. The can contains individually wrapped chocolates that each take up about 28 cm³ of space. Determine how many chocolates a container of the height 15 cm will hold.

27. _____

Algebraic Models

28. Simplify: $(35x^7y^5) \div (5x^2y^3)$

28. _____

29. Evaluate: $(2^{-3})^2$

29. _____

30. Solve for x: $5^x = 1$

30. _____

31. Simplify: $(2x^6)(4x^3)$

31. _____

32. Simplify: $(5a^{-2}b^5c^{12})^3$

32. _____

33. Evaluate: $(-1)^{13}(-1)^{10} + 2^0$

33. _____

34. Simplify:

    (a) $\left(x^5\right)^{-3} x^{-8}$

    34(a) _____

    (b) $(2a)^4$

    34(b) _____

35. Solve for x. $3(4^x) - 6 = 186$

35. _____

36. Evaluate: $\dfrac{1}{3^{-2}} + \dfrac{1}{8^{-1}} - 5^0$

36. _____

37. Solve for x: $6^{2x} = \dfrac{1}{1\,679\,616}$

37. _____

38. Solve for x: $7^{6x-1} = 7^{2x+11}$

38. _____

39. Solve for x: $5^{2x} = \dfrac{1}{125}$

39. _____

40. Evaluate (2 decimals): $75[(1 + 0.00325)^{12} - 1]$

40. _____

41. Evaluate $\left(2a^{-2}b^0c\right)^{-3}$ for $a = 2$, $b = 3$, and $c = -4$.

41. _____

42. The formula $K = \dfrac{5F}{9} + 255$ can be used to convert degrees Fahrenheit, F, to degrees Kelvin, K. Determine the Kelvin equivalent of 27°F.

42. _____

43. Given $K = \dfrac{5F}{9} + 255$ rearrange the formula to isolate F.

43. _____

Statistical Literacy and Graphical Models

44.   State if it is a primary or secondary source.

(a)   Youssef asked his friends how many hours per week they   44(a) _____
        spend reading.

(b)   You use the Internet to find the number of pandas in the world.   44(a) _____

(c)   Statistics Canada collected data from Canadian households on   44(a) _____
        annual household income.

(d)   You count the number of cars passing through an intersection   44(a) _____
        during rush hour.

45.   The following scores represent the final examination grade
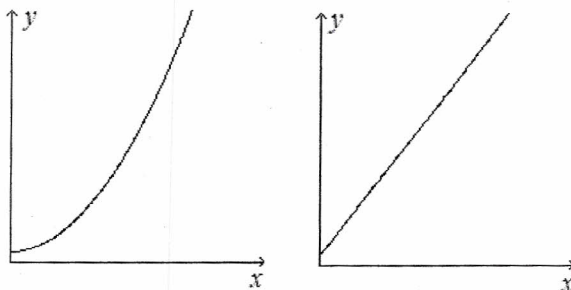   for a Canadian History course.

        | 60 | 78 | 89 | 54 | 64 | 84 | 76 | 81 |
        | 55 | 65 | 81 | 79 | 38 | 97 | 67 | 55 |
        | 45 | 87 | 49 | 72 | 76 | 81 | 68 | 63 |

        Treating the distribution as a population, find:

(a)   mean   45(a) _____

(b)   median   45(b) _____

(c)   mode   45(c) _____

46.   Which statement best describes these graphs?   46. _____

(a)   Only graph i models a linear relation.
(b)   Both graphs model linear relations.
(c)   Only graph ii models a linear relation.
(d)   Neither graph models a linear relation.

Annuities and Mortgages

47. Rearrange the equation to solve for
R: $7000 = \dfrac{R\left[(1+0.066)^{46}-1\right]}{0.066}$.

47. _____

48. True or false:

(a) an annuity can be used to save money for a financial goal

48(a) _____

(b) an annuity can be used to repay debt

48(b) _____

(c) a mortgage is an example of an annuity

48(c) _____

(d) an annuity must have identical payments and compounding periods

48(d) _____

49. Money is invested at 3.2 % compounded quarterly for 8 years.

(a) Determine the interest rate, i.

49(a) _____

(b) Determine the number of conversion periods, n.

49(b) _____

50. Luis deposits $125 at the end of each quarter into an account that pays 6% compounded quarterly. Calculate the amount in the account at the end of 3 years.

50. _____

51. Matt has a loan of $18 300 at 1.25 % compounded monthly. He will pay off the loan over the next 5 years. Determine Matt's monthly loan payment.

51. _____

52. Carolyn needs $10 500 in four years from now. How much should she deposit at the end of each year for the next 4 years in an account that earns 5 % compounded annually?

52. _____

53. Patrick received a car loan from the Ford Institute of Finance. He will repay in equal installments of $350 at the end of every month for the next 5 years. What is the amount of the loan if the interest rate is 3.5% compounded monthly?

53. _____

Budgets

54. (a)   What is a variable expense and a fixed expense?   54(a) _____

_____

_____

_____

_____

  (b)   Give one example for each expense.   54(b) _____

_____

_____

_____

_____

55.   Convert $150 spent on daycare each week to a monthly amount.   55. _____

56.   Daniel is a student at a college. He has a part-time job with take-home pay of $525 every two weeks. He has received a scholarship of $4100 this year. This table shows his expenses:

Expense	Amount
Tuition	$3700 yearly
Rent and utilities	$650 monthly
Food	$70 weekly
Cell phone	$40 monthly
Clothing	$90 bi-monthly
Miscellaneous	$35 bi-weekly

Chart is on the next page.

(a) Use the data provided to design a monthly budget for Daniel. **Show your calculations** and indicate whether each expense or income is fixed or variable.

Monthly Amount ($)

Income	Fixed ($)	Variable ($)	Total ($)
Salary			
Scholarship			
Total Income			
Expenses			
Tuition			
Rent and utilities			
Food			
Cell phone plan			
Clothing			
Miscellaneous			
Total Expenses			
Total Income – Total Expenses			

(b) If Daniel's budget is in the negatives, how can he adjust his budget so that he would balance each month?

_____

_____

_____

_____

Remember: you are responsible for making your own cheat sheet. It must be hand written in your own handwriting on an 8½ by 11 double sided paper.

Course End Review