



Apprenticeship and Workplace Mathematics 10

Examination Booklet

Sample B

Teacher Version

Revised November 2, 2011

DO NOT OPEN ANY EXAMINATION MATERIALS UNTIL INSTRUCTED TO DO SO.

Examination Instructions

1. On your Answer Sheet, fill in the bubble (Form A, B, C, D, E, F, G or H) that corresponds to the letter on this Examination Booklet.
2. You may require a ruler (metric and imperial).
3. Protractors are **not** permitted.
4. When using your calculator (scientific or approved graphing calculator):
 - use the programmed value of π rather than the approximation of 3.14.
 - round only in the final step of the solution.
5. Diagrams are not necessarily drawn to scale.
6. When the examination begins, remove the data pages located in the centre of this booklet.
7. Read the Examination Rules on the back of this booklet.

SAMPLE EXAMINATION — TEACHER VERSION

The purpose of the Sample Examinations is to give teachers and students a wide range, but not an exhaustive list, of questions that could appear in the provincial examinations. Examinations are developed to be as congruent as possible with the curriculum within the parameters of large-scale testing. However, this type of examination does not allow for the assessment of all the mathematical processes described in *The Common Curriculum Framework for Grades 10–12 Mathematics, 2008* (CCF).

The Teacher Versions include a number of comments that clarify the terminology or intent of a question. They also provide some alternative solutions or state expectations, whenever appropriate. The comments are given in the context of a specific question and are likely to apply to other questions. However, the comments will only appear once, therefore, teachers are encouraged to review both samples.

Teachers are encouraged to have their students use the Data Pages throughout the year so that they become familiar with their content before taking the provincial examination.

The pathway Apprenticeship and Workplace Mathematics has been designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into the majority of trades and for direct entry into the work force (CCF, p. 15). Whenever possible, the exam questions have been set in a meaningful context as recommended by the framework (CCF, p. 17). The examples in this examination do not constitute an exhaustive list of all the possible trades or occupations.

PART A: MULTIPLE-CHOICE QUESTIONS
(calculator not permitted)

Value: 12 marks

Suggested Time: 30 minutes
Allowable Time: 40 minutes

INSTRUCTIONS: No calculator may be used for this part of the examination. For each question, select the best answer and record your choice on the blue Answer Sheet provided. Using an HB pencil, completely fill in the bubble that has the letter corresponding to your answer. You have a maximum of 40 minutes to work on this section.

You have **Examination Booklet Form B**. In the box above #1 on your **Answer Sheet**, fill in the bubble as follows.

Exam Booklet Form/
Cahier d'examen A B C D E F G H



The intent of the “Calculator not permitted” section is to test the Mental Mathematics and Estimation [ME] process. Please note that correct responses are often rounded to the nearest number.

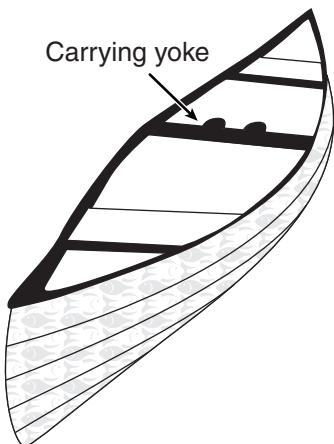
1. An interior designer cuts a 14 m rope into 20 equal pieces. Calculate the length of each piece.

- A. 0.7 cm
- B. 1.4 cm
- * C. 70 cm
- D. 140 cm

2. A drawer is 11 inches wide. Estimate this width in centimetres.

- A. 4
- B. 9
- C. 14
- * D. 25

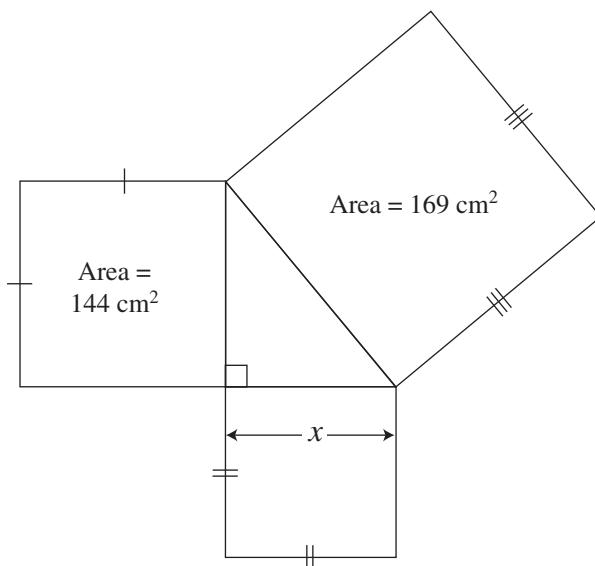
3. A canoe often has a wooden yoke across its widest part so that it may be carried upside down on a person's shoulders. A boat builder must trim a 36" yoke to fit into a canoe $32\frac{1}{2}$ " across. How much wood should be trimmed from each end so that the centre of the yoke will be over the centreline of the canoe?



- * A. $1\frac{3}{4}$ "
B. $3\frac{1}{2}$ "
C. $16\frac{1}{4}$ "
D. 18"
4. Baseboards are to be installed on all the walls of a rectangular-shaped room 24'-4" long and 18'-6" wide. The room has two 31" openings that do not require baseboards. Which calculation could be used to find the total length of baseboards in feet?
- A. $[24(12)+4]+[18(12)+6]-2(31)$
* B. $\frac{2[(24 \cdot 12 + 4) + (18 \cdot 12 + 6)] - 2(31)}{12}$
C. $\frac{(24.3+18.5)2}{12}$
D. $2[31+12(24)+4+18(12)+6]$

5. A walk-in closet is 4 m wide and 5 m long. The owner wants to enlarge this room to turn it into an office. What changes should he make to exactly double the area of the closet?
- * A. double the width
B. double both the length and the width
C. extend both the length and the width by 1 metre
D. extend both the length and the width by 2 metres

6. In the diagram below, determine the length of x .



- * A. $\sqrt{1}$ cm
B. 5 cm
C. 25 cm
D. $\sqrt{313}$ cm

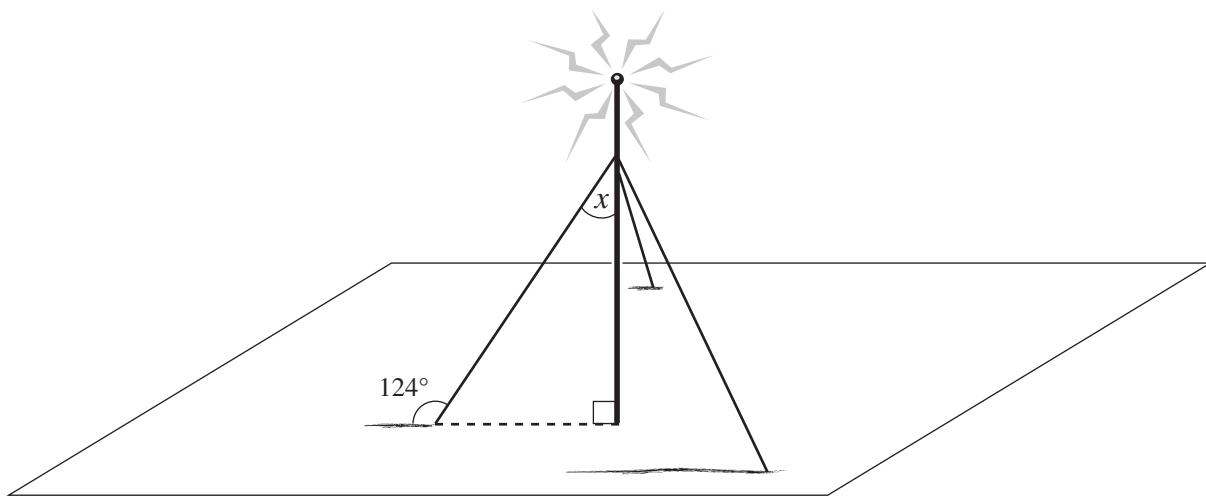


The Pythagorean Theorem should be thought of as more than just a formula. The provincial examinations will have questions highlighting the pictorial aspect of the theorem.

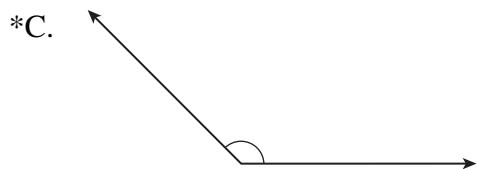
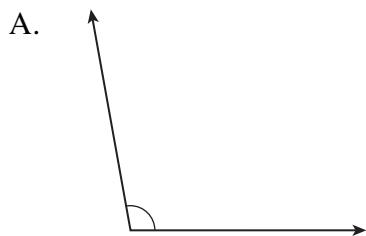


Diagrams are not necessarily drawn to scale in provincial examinations. However when a measurement or visual estimate is required, there will be a note stating “this diagram is drawn to scale.” On the electronic examinations, measurement tools will automatically appear on screen as required.

7. A radio broadcast tower is supported by three cables, as shown in the diagram below. What is the measure of angle x ?



- * A. 34°
B. 46°
C. 56°
D. 146°
8. Which angle drawn below measures approximately 135° ?



Note: These diagrams are drawn to scale

9. A 3 kg bag of sugar costs \$6.00. A 500 g box of sugar cubes costs \$2.50. A restaurant owner is considering which packaging he should buy for customers to use in their tea and coffee. Which of the following statements are true?

I.	The unit price of bagged sugar is \$2.00/kg, and the unit price of sugar cubes is \$5.00/kg.
II.	Boxed sugar cubes are less messy to serve to diners than sugar from a large bag
III.	In order to get 3 kg of sugar cubes, the owner would need to spend \$15.00

- A. III only
B. I and II only
C. II and III only
D. I, II and III

*

10. One summer, the cost of oranges was \$0.50/lb. The next summer the cost was \$0.75/lb. What was the percent increase?

- A. 25
B. 50
C. 125
D. 150

*

11. Calculate the total number of hours and minutes Jim worked the week of July 13.

Name: Jim	
Week: July 13	
Day	Hours Worked
Monday	5.5
Tuesday	4.0
Wednesday	6.25
Thursday	4.0
Friday	4.5

- A. 23 hours 35 minutes
B. 23 hours 80 minutes
* C. 24 hours 15 minutes
D. 24 hours 25 minutes
12. Deshawn earns a 15% commission on her total sales. One week her sales totalled \$4200. What was her total commission?
A. \$210
B. \$280
C. \$420
* D. \$630

This is the end of Part A (calculator not permitted).

If there is some time left, you have two options:

- i) Make sure you have answered all the questions. You will not be able to go back to this section at the end of 40 minutes.
- ii) You may proceed to the rest of the examination without the use of a calculator; there are many questions that do not require a calculator. Make sure you flag any questions you skip to remember to go back to them later.

Do not access your calculator until directed by the supervisor. At the end of the 40 minutes, the supervisor will give you permission to access your calculator.

PART B: MULTIPLE-CHOICE QUESTIONS
(calculator permitted)

Value: 48 marks

Suggested Time: 90 minutes

INSTRUCTIONS: For each question, select the **best** answer and record your choice on the **white Answer Sheet** provided. Using an HB pencil, completely fill in the bubble that has the letter corresponding to your answer.



When going over the sample examinations in class, teachers may want to discuss with their students which questions from Part B can be answered without a calculator.

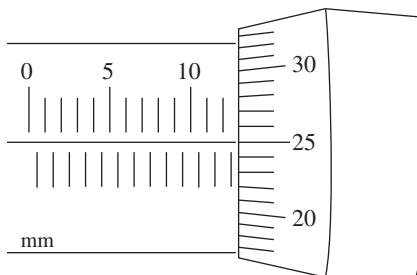
13. A hand-held scientific calculator is measured and the volume is found to be 101. What units are likely to be included with this answer?

- A. mm^2
- * B. cm^3
- C. m^3
- D. L



While volume *measurement* is not part of the course, understanding the *units* for volume is (see outcome A1). The provincial examinations will make reference to various everyday objects in the shape of prisms or cylinders. This question assess the understanding of units of volume. Volume calculation is not included in the Specific Outcomes of the curriculum and therefore is not tested on the provincial examination.

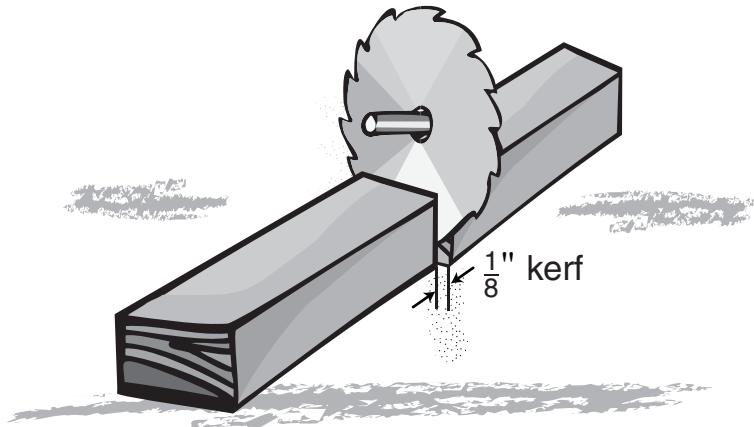
14. What measurement is shown on the micrometer?



- A. 0.25 mm
- B. 12.00 mm
- C. 12.50 mm
- * D. 12.75 mm

15. The average temperature in the city of Regina is -28 degrees Celsius. What is the equivalent temperature in degrees Fahrenheit?
- A. 7.2
* B. -18.4
C. -33.3
D. -44.0

16. Eight foot long, 2×4 lumber used in building picnic tables is cut according to a pattern. A $4' - 5"$ length is cut, then a $1' - 4"$ length, then a $1' - 7"$ length. Each cut makes a $\frac{1}{8}$ " kerf (wastage).

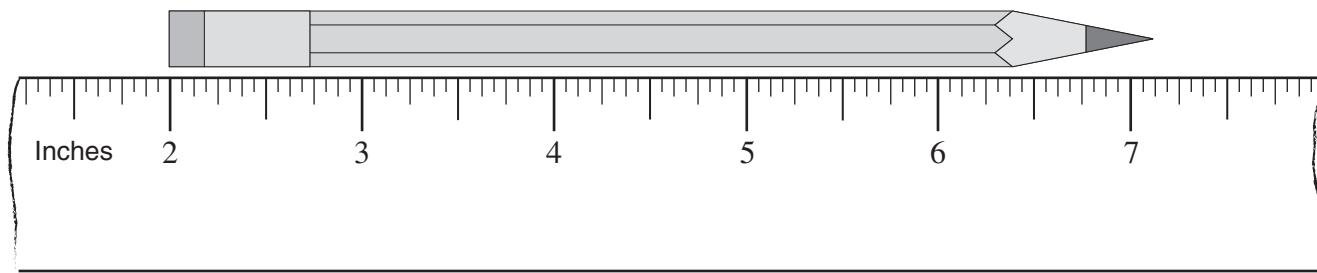


- What is the amount of wood remaining after the three lengths have been cut?
- A. $3\frac{5}{8}$ "
* B. $7\frac{5}{8}$ "
C. $7\frac{7}{8}$ "
D. 8 "
17. Two barrels are filled with oil. One holds 50 US quarts and the other one holds 50 British quarts. What is the difference between their volumes in litres?
- A. 0.18
* B. 9.5
C. 10.9
D. They contain the same amounts.

18. On a ruler measuring in inches, what measure is one-quarter the distance between the $3\frac{3}{4}$ " mark and the 5" mark?

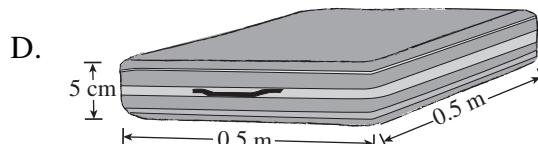
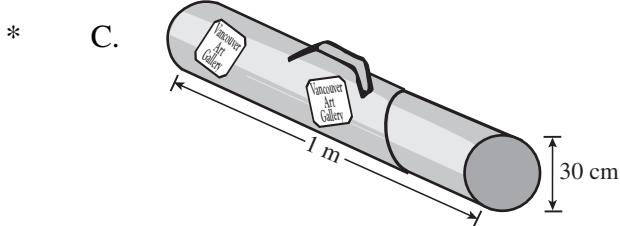
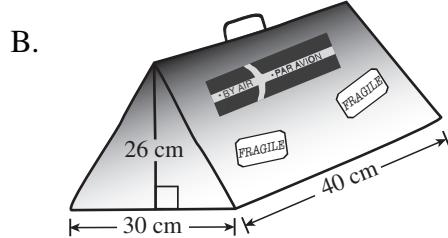
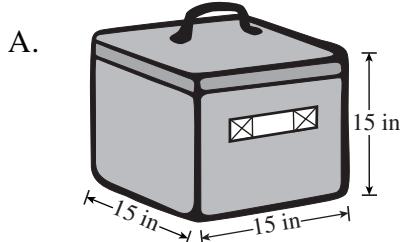
- * A. $4\frac{1}{16}$
- B. 4.1
- C. $4\frac{1}{8}$
- D. $4\frac{1}{4}$

19. Using the ruler below, determine the length of the pencil.



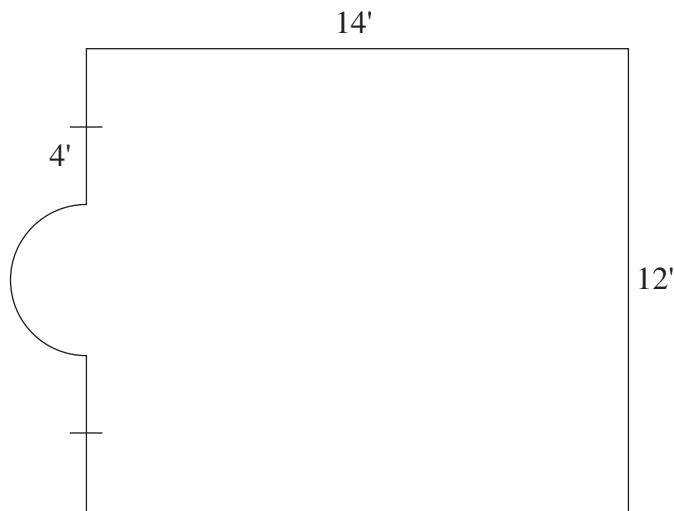
- * A. $5\frac{1}{8}$ "
- B. 5.2"
- C. $5\frac{1}{4}$ "
- D. $7\frac{1}{8}$ "

20. The maximum size (length + width + height) allowed per fare-paying customer for baggage on an aircraft is 157 cm. Which of the following pieces of luggage would be over the size allowance?



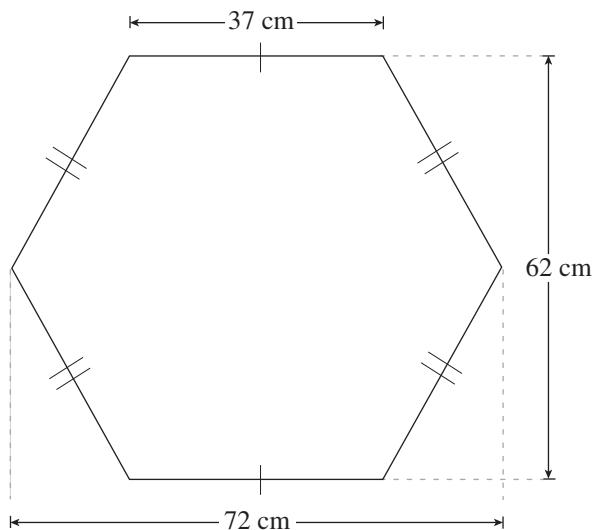
Even though the terms "length" and "width" do not usually apply to a cylinder, students are asked to recognize that the end of the cylinder (option C) has a diameter (30 cm) that defines both length and width.

21. A carpet cleaner charges by the square foot. Use the diagram below to find the total carpet area.



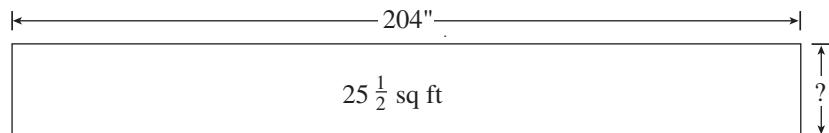
- A. 168.0 sq ft
- * B. 174.3 sq ft
- C. 180.6 sq ft
- D. 218.3 sq ft

22. A patio table is in the shape of a hexagon as drawn below. Calculate the area of the table.



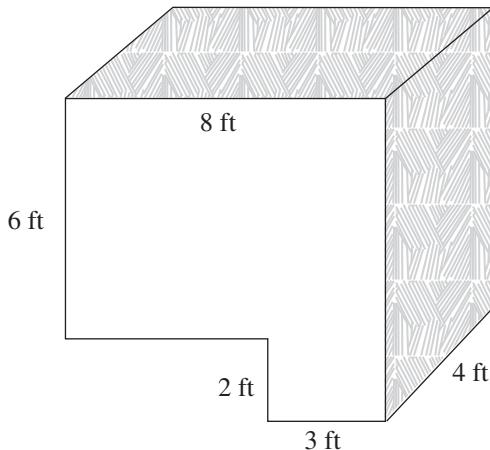
- A. 1689.5 cm^2
- B. 2294 cm^2
- * C. 3379 cm^2
- D. 4464 cm^2

23. The area of the diagram below is $25\frac{1}{2}$ square feet. What is its width in inches?



- A. $1\frac{1}{2}$
- B. 8
- C. 17
- * D. 18

24. The prism shown has three visible faces. Determine which solution is reasonable to calculate the surface area of the visible faces.

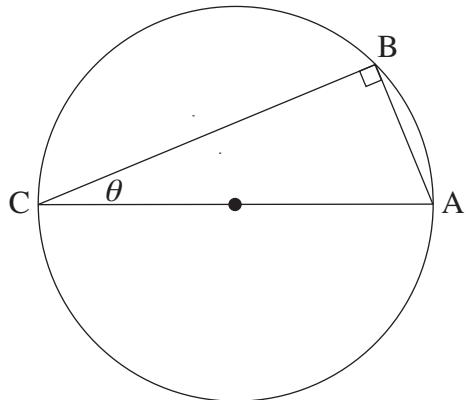


- * A. $(8 \times 8) - (2 \times 5) + 2(8 \times 4)$
- B. $(6 \times 8) - (3 \times 2) + (4 \times 6) + (8 \times 4)$
- C. $2(6 \times 5) + (3 \times 8) + (4 \times 8)$
- D. $2(8 \times 4) + (5 \times 6) + (2 \times 3)$

25. Andrew says to Susan “I’m going to bisect this right angle into three angles of 30° each.” Which sentence describes Andrew’s statement?

- A. It is correct because to bisect means to divide equally.
- * B. It is incorrect because to bisect means to divide in half.
- C. It is correct because 3 angles of 30° each add up to a 90° angle.
- D. It is incorrect because 3 angles of 30° do not form a right angle.

26. Given the diagram below, which set of statements is correct?

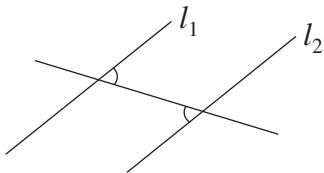


I.	The diameter is opposite to angle θ .
II.	The hypotenuse is the diameter.
III.	The adjacent side is the long leg of $\triangle ABC$.
IV.	The size of angle θ can be learned if we know only the diameter of the circle.

- * A. I and II only
- B. II and III only
- C. II and IV only
- D. III and IV only

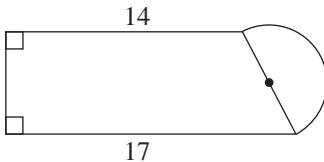
27. Which of the following situations can be solved using trigonometry?

A.



Is l_1 parallel to l_2 ?

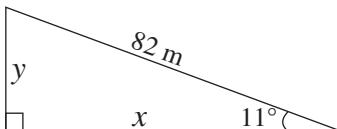
B.



What is the area of this figure?

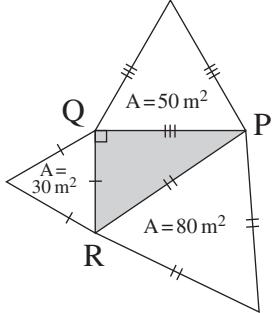
*

C.



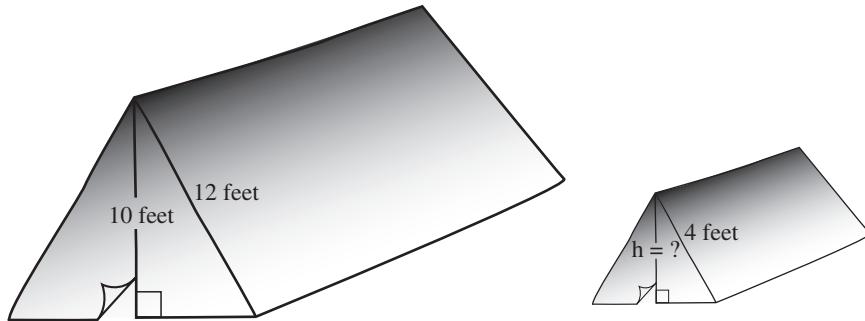
What are the lengths of x and y ?

D.



Given the areas of the three equilateral triangles,
is PQR a right triangle?

28. The two tents below are similar. What is the height of the smaller tent?



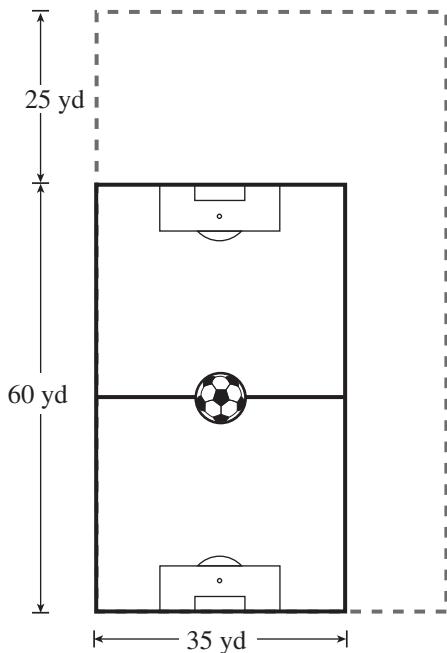
A. 2.0 feet

* B. 3.3 feet

C. 4.8 feet

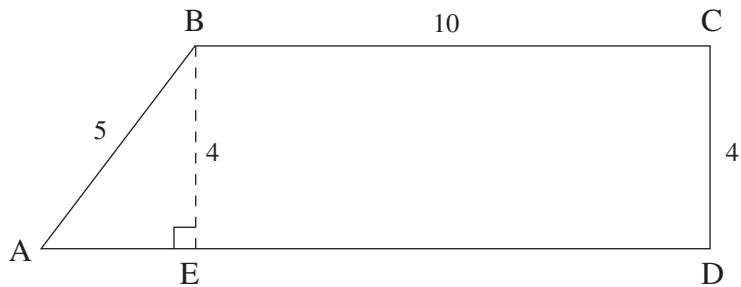
D. 6.0 feet

29. A small soccer field is to be enlarged, though its shape will stay the same. What will be the area of the new field?



- A. 2100 sq yd
- B. 2300 sq yd
- * C. 4215 sq yd
- D. 5100 sq yd

30. What is the length of AD to confirm that ABCD is a right trapezoid?



- A. 3 units
- B. 4 units
- C. 6 units
- * D. 13 units

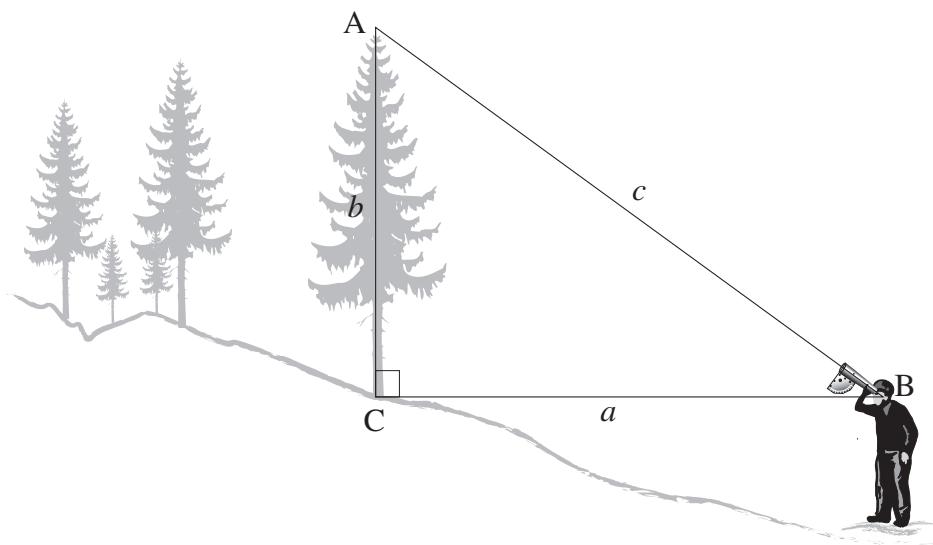
31. Use a ruler to measure the outside diameter of the pipe diagram below. Use your measurement to estimate the outside circumference of the pipe.



Note: This diagram is actual size.

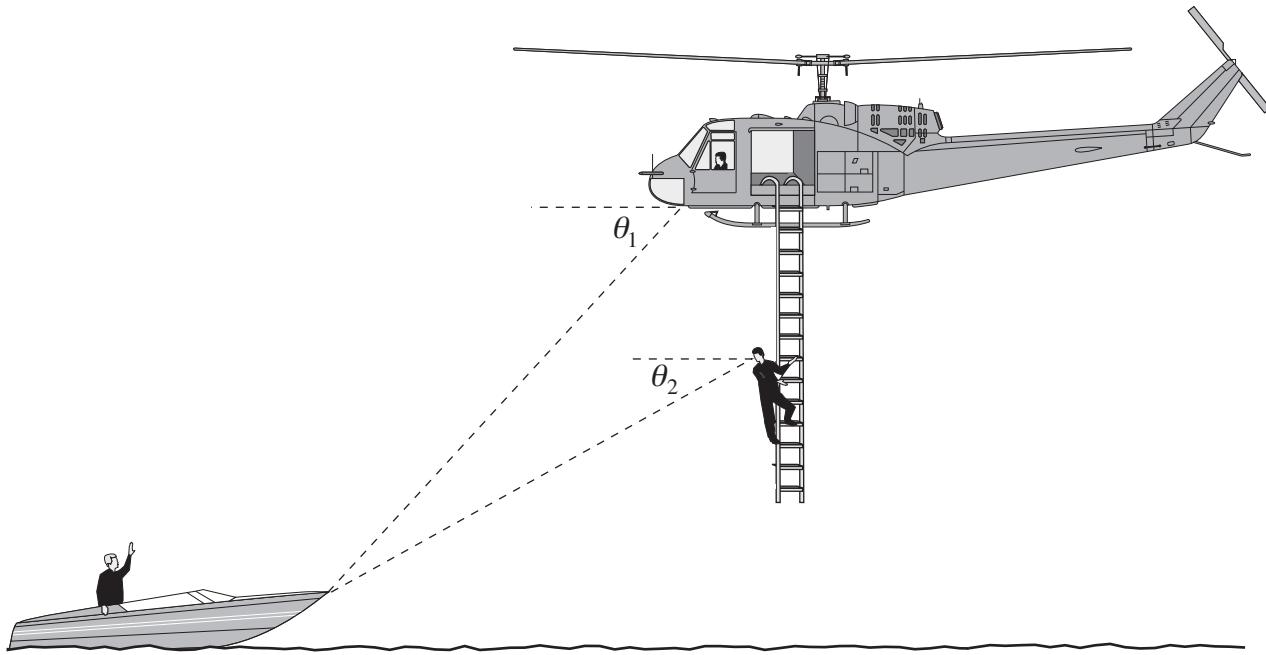
- * A. 6 cm
 - * B. 9 cm
 - * C. 12 cm
 - * D. 27 cm
32. Mani left his house and walked 1.3 km due east and then 2.6 km due south. What is the straight line distance between Mani and his house?
- A. 1.9 km
 - B. 2.8 km
 - * C. 2.9 km
 - D. 3.9 km
33. Which statement is always true about the adjacent side in a right triangle?
- A. The adjacent side is opposite the right angle.
 - B. The adjacent side is across from the given angle.
 - C. The adjacent side is the shortest side in the right triangle.
 - * D. The adjacent side meets the hypotenuse at the given angle.

34. In the diagram below, determine $\sin \angle B$.



- * A. $\frac{b}{c}$
B. $\frac{b}{a}$
C. $\frac{a}{c}$
D. $\frac{a}{b}$

35. As a rescue helicopter approaches a boat in distress, the pilot and the rescue technician on the ladder observe the boat from different angles of depression. As the helicopter moves forward, how will these angles change?

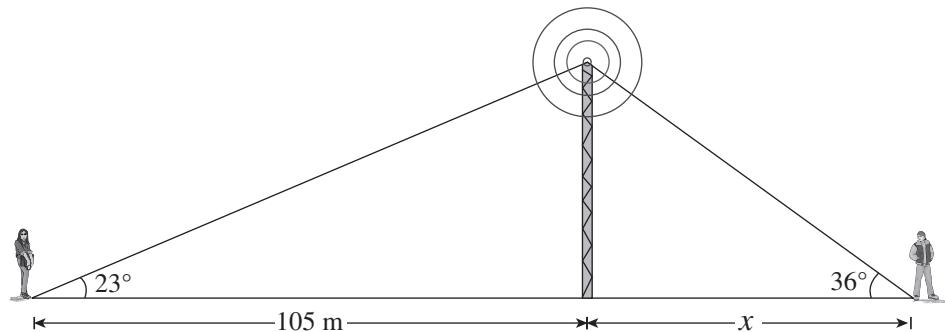


- A. θ_1 will increase; θ_2 will decrease
- B. θ_1 will decrease; θ_2 will increase
- * C. θ_1 will increase; θ_2 will increase
- D. θ_1 will decrease; θ_2 will decrease



This question assessed the visualization process [v] and the understanding of the relationship between angles and distances. Students will be expected to recognize the impact of a change without necessarily having to quantify it.

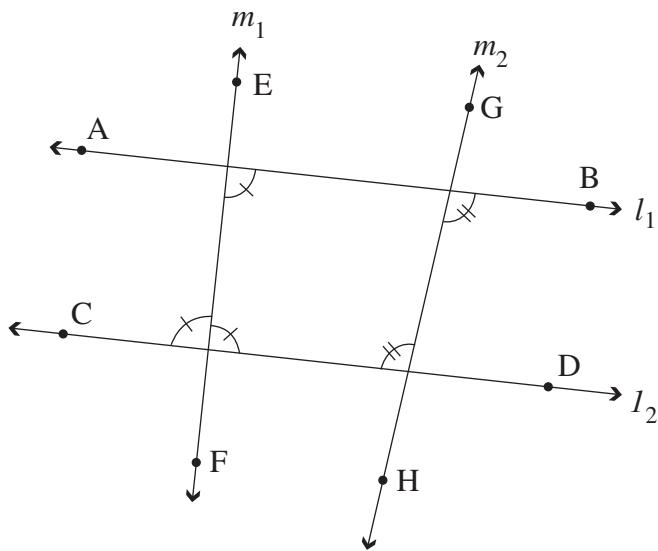
36. Janelle and Mandeep are standing on opposite sides of a cell phone tower. Janelle is standing 105 m from the tower. Her angle of elevation to the tower is 23° . Mandeep's angle of elevation to the tower is 36° . How far from the base of the tower is he standing?



- A. 33.2 m
 - B. 36.1 m
 - C. 56.5 m
 - * D. 61.3 m
37. Bob is standing on a surveyor's mark. He measures a 61° angle of elevation to the top of a building 72 m tall. How far away from the base of the building is the surveyor's mark?
- * A. 40 m
 - B. 64 m
 - C. 82 m
 - D. 130 m

38. In the diagram below which line is:

- i) perpendicular to l_1
- ii) parallel to l_1 ?

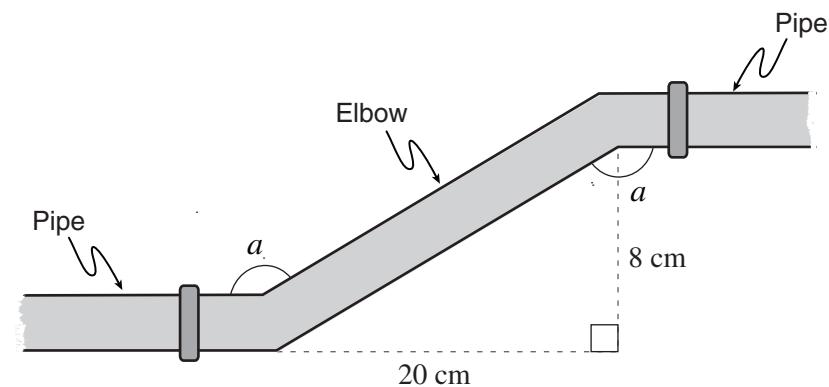


- A. i) none ii) l_2
- B. i) none ii) none
- * C. i) m_1 ii) l_2
- D. i) m_2 ii) none

39. Gaugan attempted to complete a half rotation on his skateboard. He managed to turn 85° . How many more degrees were needed to complete the half rotation?

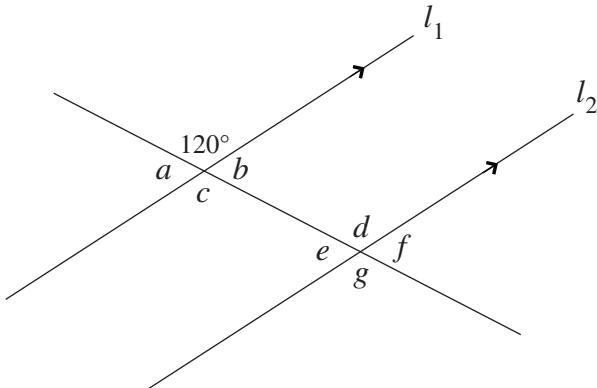
- A. 5
- B. 15
- * C. 95
- D. 275

40. Two pipes are installed parallel but offset as shown below. To join them, an “elbow” pipe will be custom made. What should be the measure of $\angle a$?



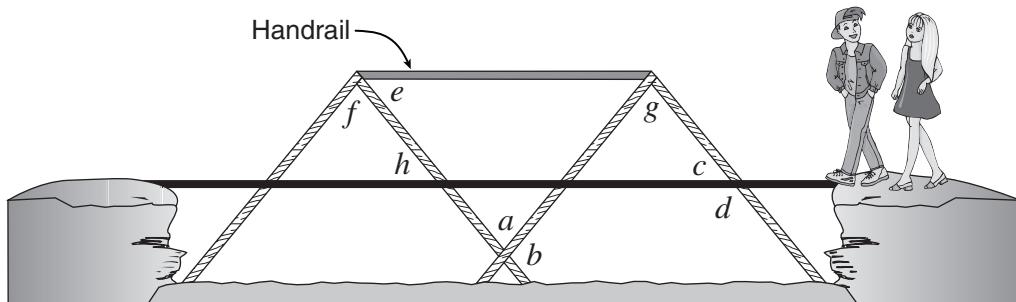
- A. 22°
- B. 68°
- C. 112°
- * D. 158°

41. Which angles measure 60° in the diagram below?



- A. $\angle a$ and $\angle b$ only
- B. $\angle d$ and $\angle g$ only
- C. $\angle e$ and $\angle f$ only
- * D. $\angle a$, $\angle b$, $\angle e$ and $\angle f$ only

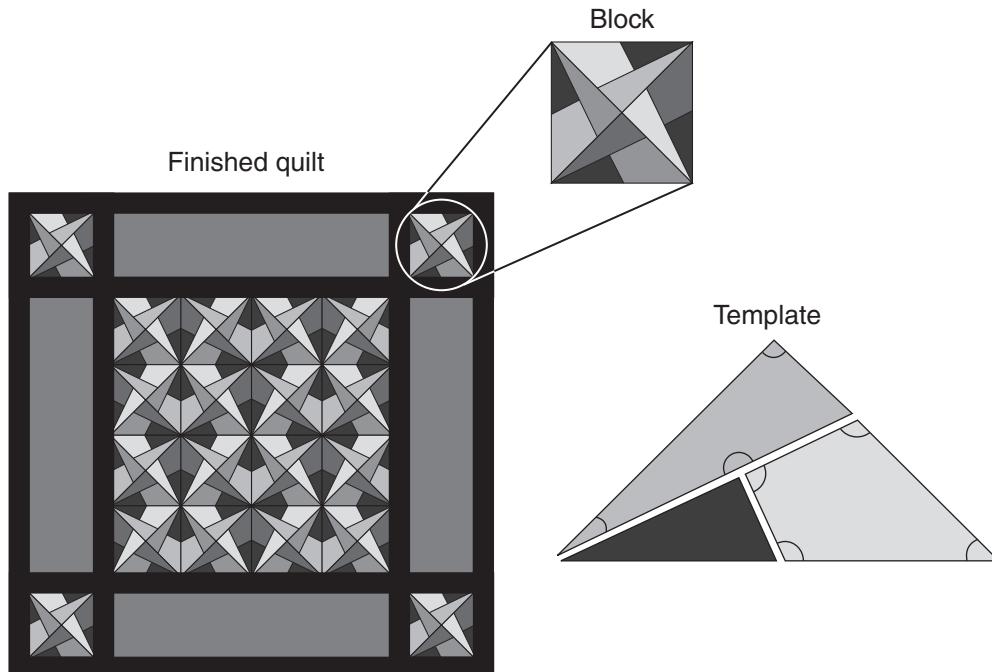
42. A footbridge is supported by diagonal braces that form a handrail, as shown below. Which pair of angles could be compared to determine if the rail is parallel to the bridge deck?



- A. $\angle b$ and $\angle g$
- B. $\angle c$ and $\angle h$
- C. $\angle e$ and $\angle h$
- D. $\angle f$ and $\angle g$

*

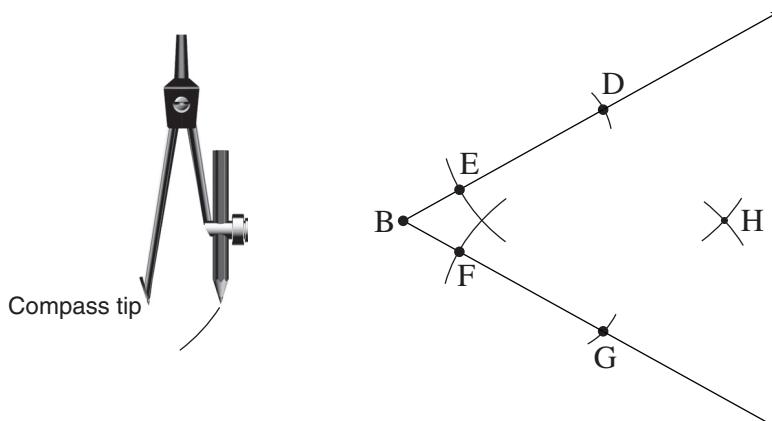
43. The template below is used to make an Amish quilt. Which of the following types of angles is **not** represented within the quilt template below?



- A. acute
- B. reflex
- C. obtuse
- D. straight

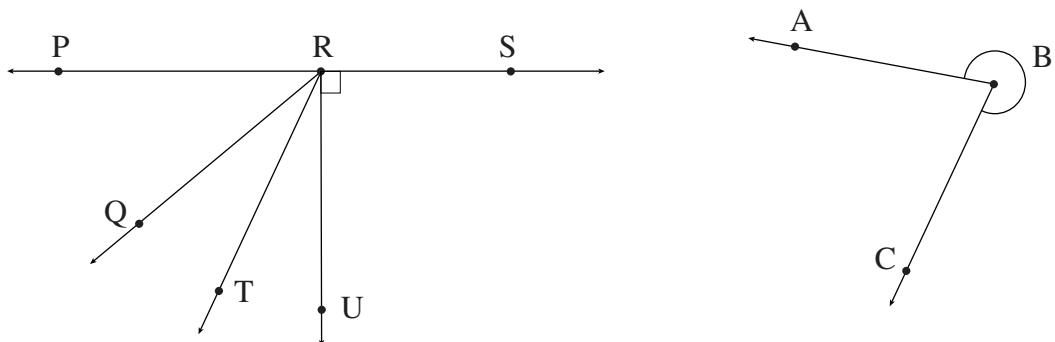
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44. To bisect \angleDBG , in what order would a compass tip touch the points?



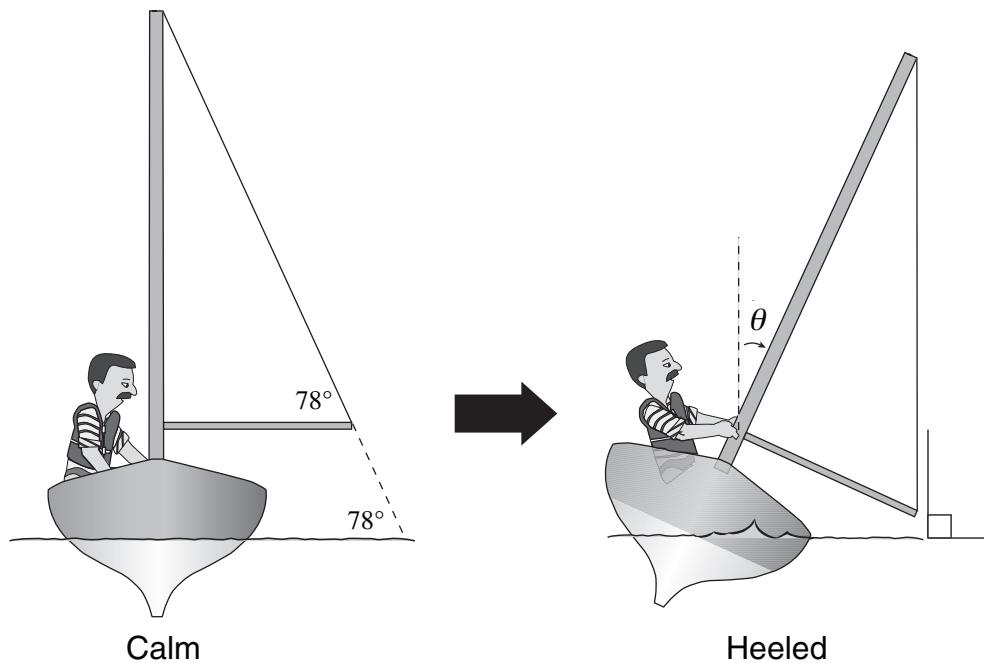
- A. D, H, G
- B. B, D, G
- C. E, D, H
- D. B, D, F

45. Identify an acute angle, an obtuse angle and a reflex angle from the diagrams below.



	Acute	Obtuse	Reflex
A.	$\angle PRQ$	$\angle ABC$	$\angle PRS$
B.	$\angle PRQ$	$\angle URS$	$\angle PRS$
*C.	$\angle QRT$	$\angle SRT$	$\angle ABC$
D.	$\angle QRT$	$\angle PRS$	$\angle ABC$

46. A sailboat heels (tips slightly) when the wind fills the sail. The edge of the sail makes a 78° angle with the water when the wind is calm. What degree of heel will make the sail edge perpendicular to the water in the diagram below?



- * A. 12°
B. 78°
C. 88°
D. 102°

47. At Computerland, 8 gigabytes of RAM costs \$259. How would the cost of 20 gigabytes of RAM be calculated based on the amount of RAM?

- A. $\frac{259}{20} = \frac{8}{x}$
B. $\frac{259}{x} = \frac{20}{8}$
C. $\frac{259}{20} = \frac{x}{8}$
* D. $\frac{259}{8} = \frac{x}{20}$

48. For the end of the year party, Mark and Vic bought soda pop.

Mark	Vic
5 L for \$9.35	12 – 355 mL cans for \$8.50

Whose purchase was better and by how much?

- A. Vic by \$0.85
- * B. Mark by \$0.12/L
- C. Vic by \$0.50/L
- D. Both purchases are equal

49. A Canadian audio engineer hires an editor in Denmark who charges 348 krone per hour.
Use the table below to determine the editor's hourly rate in Canadian dollars.

ISO-Code	Country (Currency)	Units per 1 CAD	CAD per 1 Unit
DKK	Denmark (Krone)	5.0025	0.1999
EUR	Europe (Euro)	0.6705	1.4914
FJD	Fiji Island (Dollar)	1.5526	0.6441
GHS	Ghana (Cedi)	1.0939	0.9142
HKD	Hong Kong (Dollar)	7.3213	0.1366

- * A. 69.57
- B. 233.33
- C. 519.01
- D. 1740.87

50. In 2008, Sasha was travelling from Aberdeen, Scotland, to Toronto, Canada. She changed her 545.45 British pounds (GBP) to Canadian dollars (CAD) upon her arrival. How many Canadian dollars did she receive? (1 GBP = 2.20 CAD)

- A. 247.93
- B. 765.00
- * C. 1 200.00
- D. 12 000.00

51. Marnie typically works 25 hours per week and earns \$11.75 per hour. The manager offered Marnie an 8% raise. What will be Marnie's new hourly rate?
- A. \$0.94
 - B. \$2.00
 - * C. \$12.69
 - D. \$13.75
52. Ling earns \$12 per hour for a 40-hour workweek. She is paid time-and-a-half for every hour worked over 40 hours during a week. Ling earned \$930 last week. How many overtime hours did she work?
- * A. 25
 - B. 37.5
 - C. 52
 - D. 77.5
53. A waiter earns \$12.85 per hour and must give 10% of his tips to the kitchen staff. He worked 8 hours last Saturday and made \$238 in tips. What was his gross pay for the shift?
- A. \$126.60
 - B. \$250.85
 - * C. \$317.00
 - D. \$340.80
54. In which situation would straight commission provide more income for the employee compared to earning a salary?
- A. The product being sold is difficult to sell.
 - B. The product being sold has a small target market.
 - * C. The employee selling the product is a good salesperson.
 - D. The employee selling the product is an inexperienced salesperson.
55. The cost of running a herring boat is \$8700 for 2 weeks. The catch is sold for \$0.12 per pound. How many pounds of herring must be caught and sold in two weeks in order to break even?
- A. 725
 - B. 1 044
 - C. 10 400
 - * D. 72 500

56. Sandra earns 8% of her sales. Last week she sold \$12 000 worth of flooring. What were her weekly earnings?

- A. \$96
- B. \$500
- * C. \$960
- D. \$9600

57. Todd sells furniture and earns either \$390.13 per week or $8\frac{1}{2}\%$ commission on his total weekly sales, whichever is greater. Given his sales were \$4561.94, calculate Todd's gross pay for the week.

- A. \$387.76
- * B. \$390.13
- C. \$684.29
- D. \$777.89

58. A surveyor from Winnipeg is offered two jobs in British Columbia:

Prince George	Vancouver
<ul style="list-style-type: none">• \$48 000 annually• 10% pay raise after 1 year	<ul style="list-style-type: none">• \$4 333.34 monthly• 5% pay raise after 1 year

What is the difference in salaries after the one-year increase?

- A. \$800
- * B. \$1800
- C. \$4000
- D. \$6600

59. Jean-Claude's gross pay is \$410.12 weekly. His deductions are 23%. What amount is deducted weekly from his pay?
- A. \$9.43
B. \$94.33
C. \$315.79
D. \$400.69
- * 60. Sheryl earns an hourly wage of \$9.30 and works 40 hours per week. She is assigned claim code 1. Calculate her weekly net pay.
- A. \$289.28
B. \$318.43
C. \$327.53
D. \$339.95



- In the provincial examinations, questions relating to common deductions from income will be limited to:
 - Canadian Pension Plan (CPP) contributions
 - Employment Insurance (EI) premiums
 - income tax (federal and provincial)
- Students are expected to be familiar with the abbreviations CPP and EI.
- Students will need to know how to determine the deductions from tables or a given percentage. (See Sample B, question 59.)

You have **Examination Booklet Form B**. In the box above #1 on your **Answer Sheet**, ensure you filled in the bubble as follows.

Exam Booklet Form/ Cahier d'examen	A	B	C	D	E	F	G	H
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>					

END OF EXAMINATION

Examination Rules

1. The time allotted for this examination is two hours.
You may, however, take up to 60 minutes of additional time to finish.
2. Answers entered in the Examination Booklet will not be marked.
3. Cheating on an examination will result in a mark of zero. The Ministry of Education considers cheating to have occurred if students break any of the following rules:
 - Students must not be in possession of or have used any secure examination materials prior to the examination session.
 - Students must not communicate with other students during the examination.
 - Students must not give or receive assistance of any kind in answering an examination question during an examination, including allowing their papers to be viewed by others or copying answers from another student's paper.
 - Students must not possess any book, paper or item that might assist in writing an examination, including a dictionary or piece of electronic equipment, that is not specifically authorized for the examination by ministry policy.
 - Students must not copy, plagiarize or present as their own, work done by any other person.
 - Students must immediately follow the invigilator's order to stop writing at the end of the examination time and must not alter an Examination Booklet, Response Booklet or Answer Sheet after the invigilator has asked students to hand in examination papers.
 - Students must not remove any piece of the examination materials from the examination room, including work pages.
4. The use of inappropriate language or content may result in a mark of zero being awarded.
5. Upon completion of the examination, return all examination materials to the supervising invigilator.

APPRENTICESHIP AND WORKPLACE MATHEMATICS 10

DATA PAGES

UNIT CONVERSION

	Common Imperial	Imperial and SI	SI
Length	1 mile = 1760 yards 1 mile = 5280 feet 1 yard = 3 feet 1 yard = 36 inches 1 foot = 12 inches	1 mile \approx 1.609 km 1 yard = 0.9144 m 1 foot = 30.48 cm 1 inch = 2.54 cm	1 km = 1000 m 1 m = 100 cm 1 cm = 10 mm
Mass (Weight)	1 ton = 2000 pounds 1 pound = 16 ounces	2.2 pounds \approx 1 kg 1 pound \approx 454 g 1 ounce \approx 28.35 g	1 t = 1000 kg 1 kg = 1000 g
Volume	1 gallon = 4 quarts 1 gallon (UK) \approx $\frac{6}{5}$ gallons (US) 32 fluid ounces = 1 quart	1.06 quarts (US) \approx 1 L 0.26 gallons (US) \approx 1 L 3.52 fluid ounces (UK) \approx 100 mL 3.38 fluid ounces (US) \approx 100 mL	
Common Abbreviations	mile = mi yard = yd feet = ' or ft inch = " or in ton = tn pound = lb ounce = oz fluid ounce = fl oz		kilometre = km metre = m centimetre = cm millimetre = mm tonne (metric ton) = t gram = g litre = L millilitre = mL

Temperature
$C = \frac{5}{9}(F - 32)$
$F = \frac{9}{5}C + 32$

FORMULAE

Trigonometry

(Put your calculator in Degree Mode)

- Right triangles

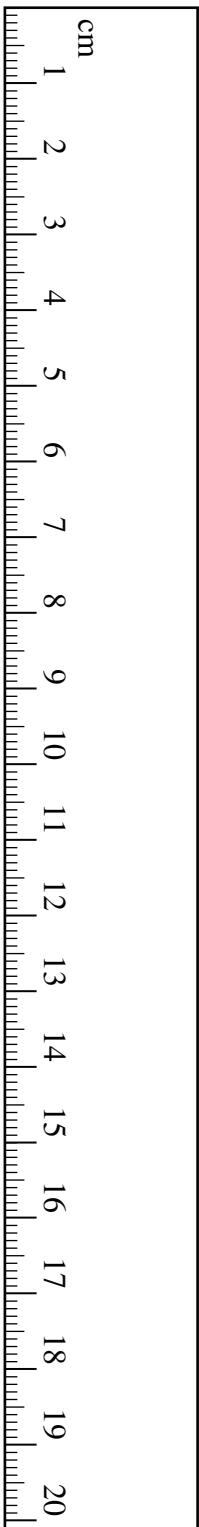
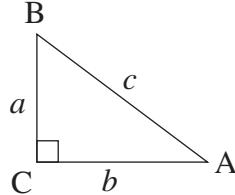
Pythagorean Theorem

$$a^2 + b^2 = c^2$$

$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$$

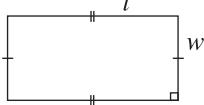
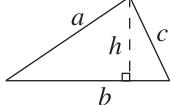
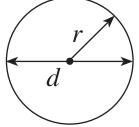
$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A = \frac{\text{opposite}}{\text{adjacent}}$$



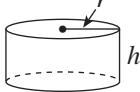
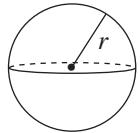
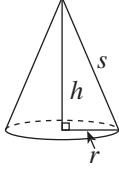
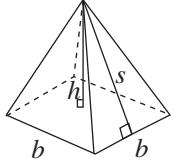
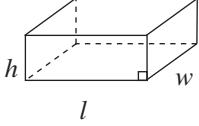
GEOMETRIC FORMULAE

Key Legend	
l = length	P = perimeter
w = width	C = circumference
b = base	A = area
h = height	SA = surface area
s = slant height	V = volume
r = radius	
d = diameter	

Geometric Figure	Perimeter	Area
Rectangle 	$P = 2l + 2w$ or $P = 2(l + w)$	$A = lw$
Triangle 	$P = a + b + c$	$A = \frac{bh}{2}$
Circle 	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$

Note: Use the value of π programmed in your calculator rather than the approximation of 3.14.



Geometric Solid	Surface Area
Cylinder 	$A_{top} = \pi r^2$ $A_{base} = \pi r^2$ $A_{side} = 2\pi rh$ $SA = 2\pi r^2 + 2\pi rh$
Sphere 	$SA = 4\pi r^2$ or $SA = \pi d^2$
Cone 	$A_{side} = \pi rs$ $A_{base} = \pi r^2$ $SA = \pi r^2 + \pi rs$
Square-Based Pyramid 	$A_{triangle} = \frac{1}{2}bs$ (for each triangle) $A_{base} = b^2$ $SA = 2bs + b^2$
Rectangular Prism 	$SA = wh + wh + lw + lw + lh + lh$ or $SA = 2(wh + lw + lh)$
General Right Prism	$SA =$ the sum of the areas of all the faces
General Right Pyramid	$SA =$ the sum of the areas of all the faces

Note: Use the value of π programmed in your calculator rather than the approximation of 3.14.

**Canada Pension Plan Contributions
Weekly (52 pay periods a year)**

**Cotisations au Régime de pensions du Canada
Hebdomadaire (52 périodes de paie par année)**

Pay Rémunération		CPP RPC									
From - De	To - À		From - De	To - À		From - De	To - À		From - De	To - À	
358.11	-	358.31	14.40	372.66	-	372.85	15.12	387.20	-	387.40	15.84
358.32	-	358.51	14.41	372.86	-	373.05	15.13	387.41	-	387.60	15.85
358.52	-	358.71	14.42	373.06	-	373.25	15.14	387.61	-	387.80	15.86
358.72	-	358.91	14.43	373.26	-	373.46	15.15	387.81	-	388.00	15.87
358.92	-	359.11	14.44	373.47	-	373.66	15.16	388.01	-	388.20	15.88
359.12	-	359.32	14.45	373.67	-	373.86	15.17	388.21	-	388.41	15.89
359.33	-	359.52	14.46	373.87	-	374.06	15.18	388.42	-	388.61	15.90
359.53	-	359.72	14.47	374.07	-	374.26	15.19	388.62	-	388.81	15.91
359.73	-	359.92	14.48	374.27	-	374.47	15.20	388.82	-	389.01	15.92
359.93	-	360.12	14.49	374.48	-	374.67	15.21	389.02	-	389.21	15.93
360.13	-	360.33	14.50	374.68	-	374.87	15.22	389.22	-	389.42	15.94
360.34	-	360.53	14.51	374.88	-	375.07	15.23	389.43	-	389.62	15.95
360.54	-	360.73	14.52	375.08	-	375.27	15.24	389.63	-	389.82	15.96
360.74	-	360.93	14.53	375.28	-	375.48	15.25	389.83	-	390.02	15.97
360.94	-	361.13	14.54	375.49	-	375.68	15.26	390.03	-	390.22	15.98
361.14	-	361.34	14.55	375.69	-	375.88	15.27	390.23	-	390.43	15.99
361.35	-	361.54	14.56	375.89	-	376.08	15.28	390.44	-	390.63	16.00
361.55	-	361.74	14.57	376.09	-	376.28	15.29	390.64	-	390.83	16.01
361.75	-	361.94	14.58	376.29	-	376.49	15.30	390.84	-	391.03	16.02
361.95	-	362.14	14.59	376.50	-	376.69	15.31	391.04	-	391.23	16.03
362.15	-	362.35	14.60	376.70	-	376.89	15.32	391.24	-	391.44	16.04
362.36	-	362.55	14.61	376.90	-	377.09	15.33	391.45	-	391.64	16.05
362.56	-	362.75	14.62	377.10	-	377.29	15.34	391.65	-	391.84	16.06
362.76	-	362.95	14.63	377.30	-	377.50	15.35	391.85	-	392.04	16.07
362.96	-	363.15	14.64	377.51	-	377.70	15.36	392.05	-	392.24	16.08
363.16	-	363.36	14.65	377.71	-	377.90	15.37	392.25	-	392.45	16.09
363.37	-	363.56	14.66	377.91	-	378.10	15.38	392.46	-	392.65	16.10
363.57	-	363.76	14.67	378.11	-	378.31	15.39	392.66	-	392.85	16.11
363.77	-	363.96	14.68	378.32	-	378.51	15.40	392.86	-	393.05	16.12
363.97	-	364.16	14.69	378.52	-	378.71	15.41	393.06	-	393.25	16.13
364.17	-	364.37	14.70	378.72	-	378.91	15.42	393.26	-	393.46	16.14
364.38	-	364.57	14.71	378.92	-	379.11	15.43	393.47	-	393.66	16.15
364.58	-	364.77	14.72	379.12	-	379.32	15.44	393.67	-	393.86	16.16
364.78	-	364.97	14.73	379.33	-	379.52	15.45	393.87	-	394.06	16.17
364.98	-	365.17	14.74	379.53	-	379.72	15.46	394.07	-	394.26	16.18
365.18	-	365.38	14.75	379.73	-	379.92	15.47	394.27	-	394.47	16.19
365.39	-	365.58	14.76	379.93	-	380.12	15.48	394.48	-	394.67	16.20
365.59	-	365.78	14.77	380.13	-	380.33	15.49	394.68	-	394.87	16.21
365.79	-	365.98	14.78	380.34	-	380.53	15.50	394.88	-	395.07	16.22
365.99	-	366.18	14.79	380.54	-	380.73	15.51	395.08	-	395.27	16.23
366.19	-	366.39	14.80	380.74	-	380.93	15.52	395.28	-	395.48	16.24
366.40	-	366.59	14.81	380.94	-	381.13	15.53	395.49	-	395.68	16.25
366.60	-	366.79	14.82	381.14	-	381.34	15.54	395.69	-	395.88	16.26
366.80	-	366.99	14.83	381.35	-	381.54	15.55	395.89	-	396.08	16.27
367.00	-	367.19	14.84	381.55	-	381.74	15.56	396.09	-	396.28	16.28
367.20	-	367.40	14.85	381.75	-	381.94	15.57	396.29	-	396.49	16.29
367.41	-	367.60	14.86	381.95	-	382.14	15.58	396.50	-	396.69	16.30
367.61	-	367.80	14.87	382.15	-	382.35	15.59	396.70	-	396.89	16.31
367.81	-	368.00	14.88	382.36	-	382.55	15.60	396.90	-	397.09	16.32
368.01	-	368.20	14.89	382.56	-	382.75	15.61	397.10	-	397.29	16.33
368.21	-	368.41	14.90	382.76	-	382.95	15.62	397.30	-	397.50	16.34
368.42	-	368.61	14.91	382.96	-	383.15	15.63	397.51	-	397.70	16.35
368.62	-	368.81	14.92	383.16	-	383.36	15.64	397.71	-	397.90	16.36
368.82	-	369.01	14.93	383.37	-	383.56	15.65	397.91	-	398.10	16.37
369.02	-	369.21	14.94	383.57	-	383.76	15.66	398.11	-	398.31	16.38
369.22	-	369.42	14.95	383.77	-	383.96	15.67	398.32	-	398.51	16.39
369.43	-	369.62	14.96	383.97	-	384.16	15.68	398.52	-	398.71	16.40
369.63	-	369.82	14.97	384.17	-	384.37	15.69	398.72	-	398.91	16.41
369.83	-	370.02	14.98	384.38	-	384.57	15.70	398.92	-	399.11	16.42
370.03	-	370.22	14.99	384.58	-	384.77	15.71	399.12	-	399.32	16.43
370.23	-	370.43	15.00	384.78	-	384.97	15.72	399.33	-	399.52	16.44
370.44	-	370.63	15.01	384.98	-	385.17	15.73	399.53	-	399.72	16.45
370.64	-	370.83	15.02	385.18	-	385.38	15.74	399.73	-	399.92	16.46
370.84	-	371.03	15.03	385.39	-	385.58	15.75	399.93	-	400.12	16.47
371.04	-	371.23	15.04	385.59	-	385.78	15.76	400.13	-	400.33	16.48
371.24	-	371.44	15.05	385.79	-	385.98	15.77	400.34	-	400.53	16.49
371.45	-	371.64	15.06	385.99	-	386.18	15.78	400.54	-	400.73	16.50
371.65	-	371.84	15.07	386.19	-	386.39	15.79	400.74	-	400.93	16.51
371.85	-	372.04	15.08	386.40	-	386.59	15.80	400.94	-	401.13	16.52
372.05	-	372.24	15.09	386.60	-	386.79	15.81	401.14	-	401.34	16.53
372.25	-	372.45	15.10	386.80	-	386.99	15.82	401.35	-	401.54	16.54
372.46	-	372.65	15.11	387.00	-	387.19	15.83	401.55	-	401.74	16.55

Employee's maximum CPP contribution for the year 2009 is \$2,118.60

B-6

La cotisation maximale de l'employé au RPC pour l'année 2009 est de 2 118,60 \$

Employment Insurance Premiums

Cotisations à l'assurance-emploi

Insurable Earnings Rémunération assurable		El premium									
From - De	To - À	Cotisation d'AE	From - De	To - À	Cotisation d'AE	From - De	To - À	Cotisation d'AE	From - De	To - À	Cotisation d'AE
333.24	-	333.81	5.77	374.86	-	375.43	6.49	416.48	-	417.05	7.21
333.82	-	334.39	5.78	375.44	-	376.01	6.50	417.06	-	417.63	7.22
334.40	-	334.97	5.79	376.02	-	376.58	6.51	417.64	-	418.20	7.23
334.98	-	335.54	5.80	376.59	-	377.16	6.52	418.21	-	418.78	7.24
335.55	-	336.12	5.81	377.17	-	377.74	6.53	418.79	-	419.36	7.25
336.13	-	336.70	5.82	377.75	-	378.32	6.54	419.37	-	419.94	7.26
336.71	-	337.28	5.83	378.33	-	378.90	6.55	419.95	-	420.52	7.27
337.29	-	337.86	5.84	378.91	-	379.47	6.56	420.53	-	421.09	7.28
337.87	-	338.43	5.85	379.48	-	380.05	6.57	421.10	-	421.67	7.29
338.44	-	339.01	5.86	380.06	-	380.63	6.58	421.68	-	422.25	7.30
339.02	-	339.59	5.87	380.64	-	381.21	6.59	422.26	-	422.83	7.31
339.60	-	340.17	5.88	381.22	-	381.79	6.60	422.84	-	423.41	7.32
340.18	-	340.75	5.89	381.80	-	382.36	6.61	423.42	-	423.98	7.33
340.76	-	341.32	5.90	382.37	-	382.94	6.62	423.99	-	424.56	7.34
341.33	-	341.90	5.91	382.95	-	383.52	6.63	424.57	-	425.14	7.35
341.91	-	342.48	5.92	383.53	-	384.10	6.64	425.15	-	425.72	7.36
342.49	-	343.06	5.93	384.11	-	384.68	6.65	425.73	-	426.30	7.37
343.07	-	343.64	5.94	384.69	-	385.26	6.66	426.31	-	426.87	7.38
343.65	-	344.21	5.95	385.27	-	385.83	6.67	426.88	-	427.45	7.39
344.22	-	344.79	5.96	385.84	-	386.41	6.68	427.46	-	428.03	7.40
344.80	-	345.37	5.97	386.42	-	386.99	6.69	428.04	-	428.61	7.41
345.38	-	345.95	5.98	387.00	-	387.57	6.70	428.62	-	429.19	7.42
345.96	-	346.53	5.99	387.58	-	388.15	6.71	429.20	-	429.76	7.43
346.54	-	347.10	6.00	388.16	-	388.72	6.72	429.77	-	430.34	7.44
347.11	-	347.68	6.01	388.73	-	389.30	6.73	430.35	-	430.92	7.45
347.69	-	348.26	6.02	389.31	-	389.88	6.74	430.93	-	431.50	7.46
348.27	-	348.84	6.03	389.89	-	390.46	6.75	431.51	-	432.08	7.47
348.85	-	349.42	6.04	390.47	-	391.04	6.76	432.09	-	432.65	7.48
349.43	-	349.99	6.05	391.05	-	391.61	6.77	432.66	-	433.23	7.49
350.00	-	350.57	6.06	391.62	-	392.19	6.78	433.24	-	433.81	7.50
350.58	-	351.15	6.07	392.20	-	392.77	6.79	433.82	-	434.39	7.51
351.16	-	351.73	6.08	392.78	-	393.35	6.80	434.40	-	434.97	7.52
351.74	-	352.31	6.09	393.36	-	393.93	6.81	434.98	-	435.54	7.53
352.32	-	352.89	6.10	393.94	-	394.50	6.82	435.55	-	436.12	7.54
352.90	-	353.46	6.11	394.51	-	395.08	6.83	436.13	-	436.70	7.55
353.47	-	354.04	6.12	395.09	-	395.66	6.84	436.71	-	437.28	7.56
354.05	-	354.62	6.13	395.67	-	396.24	6.85	437.29	-	437.86	7.57
354.63	-	355.20	6.14	396.25	-	396.82	6.86	437.87	-	438.43	7.58
355.21	-	355.78	6.15	396.83	-	397.39	6.87	438.44	-	439.01	7.59
355.79	-	356.35	6.16	397.40	-	397.97	6.88	439.02	-	439.59	7.60
356.36	-	356.93	6.17	397.98	-	398.55	6.89	439.60	-	440.17	7.61
356.94	-	357.51	6.18	398.56	-	399.13	6.90	440.18	-	440.75	7.62
357.52	-	358.09	6.19	399.14	-	399.71	6.91	440.76	-	441.32	7.63
358.10	-	358.67	6.20	399.72	-	400.28	6.92	441.33	-	441.90	7.64
358.68	-	359.24	6.21	400.29	-	400.86	6.93	441.91	-	442.48	7.65
359.25	-	359.82	6.22	400.87	-	401.44	6.94	442.49	-	443.06	7.66
359.83	-	360.40	6.23	401.45	-	402.02	6.95	443.07	-	443.64	7.67
360.41	-	360.98	6.24	402.03	-	402.60	6.96	443.65	-	444.21	7.68
360.99	-	361.56	6.25	402.61	-	403.17	6.97	444.22	-	444.79	7.69
361.57	-	362.13	6.26	403.18	-	403.75	6.98	444.80	-	445.37	7.70
362.14	-	362.71	6.27	403.76	-	404.33	6.99	445.38	-	445.95	7.71
362.72	-	363.29	6.28	404.34	-	404.91	7.00	445.96	-	446.53	7.72
363.30	-	363.87	6.29	404.92	-	405.49	7.01	446.54	-	447.10	7.73
363.88	-	364.45	6.30	405.50	-	406.06	7.02	447.11	-	447.68	7.74
364.46	-	365.02	6.31	406.07	-	406.64	7.03	447.69	-	448.26	7.75
365.03	-	365.60	6.32	406.65	-	407.22	7.04	448.27	-	448.84	7.76
365.61	-	366.18	6.33	407.23	-	407.80	7.05	448.85	-	449.42	7.77
366.19	-	366.76	6.34	407.81	-	408.38	7.06	449.43	-	449.99	7.78
366.77	-	367.34	6.35	408.39	-	408.95	7.07	450.00	-	450.57	7.79
367.35	-	367.91	6.36	408.96	-	409.53	7.08	450.58	-	451.15	7.80
367.92	-	368.49	6.37	409.54	-	410.11	7.09	451.16	-	451.73	7.81
368.50	-	369.07	6.38	410.12	-	410.69	7.10	451.74	-	452.31	7.82
369.08	-	369.65	6.39	410.70	-	411.27	7.11	452.32	-	452.89	7.83
369.66	-	370.23	6.40	411.28	-	411.84	7.12	452.90	-	453.46	7.84
370.24	-	370.80	6.41	411.85	-	412.42	7.13	453.47	-	454.04	7.85
370.81	-	371.38	6.42	412.43	-	413.00	7.14	454.05	-	454.62	7.86
371.39	-	371.96	6.43	413.01	-	413.58	7.15	454.63	-	455.20	7.87
371.97	-	372.54	6.44	413.59	-	414.16	7.16	455.21	-	455.78	7.88
372.55	-	373.12	6.45	414.17	-	414.73	7.17	455.79	-	456.35	7.89
373.13	-	373.69	6.46	414.74	-	415.31	7.18	456.36	-	456.93	7.90
373.70	-	374.27	6.47	415.32	-	415.89	7.19	456.94	-	457.51	7.91
374.28	-	374.85	6.48	415.90	-	416.47	7.20	457.52	-	458.09	7.92

Yearly maximum insurable earnings are \$42,300

Yearly maximum employee premiums are \$731.79

The premium rate for 2009 is 1.73 %

Le maximum annuel de la rémunération assurable est de 42 300 \$

La cotisation maximale annuelle de l'employé est de 731,79 \$

Le taux de cotisation pour 2009 est de 1,73 %

Federal tax deductions

Effective January 1, 2009

Weekly (52 pay periods a year)

**Also look up the tax deductions
in the provincial table****Retenues d'impôt fédéral**En vigueur le 1^{er} janvier 2009

Hebdomadaire (52 périodes de paie par année)

**Cherchez aussi les retenues d'impôt
dans la table provinciale**

Pay Rémunération	Federal claim codes/Codes de demande fédéraux									
	0	1	2	3	4	5	6	7	8	9
From Less than De Moins de	Deduct from each pay Retenez sur chaque paie									
335 - 339	44.65	15.55	12.70	7.00	1.30					
339 - 343	45.20	16.10	13.25	7.55	1.85					
343 - 347	45.80	16.65	13.80	8.10	2.45					
347 - 351	46.35	17.20	14.35	8.65	3.00					
351 - 355	46.90	17.75	14.90	9.25	3.55					
355 - 359	47.45	18.35	15.50	9.80	4.10					
359 - 363	48.00	18.90	16.05	10.35	4.65					
363 - 367	48.60	19.45	16.60	10.90	5.25					
367 - 371	49.15	20.00	17.15	11.45	5.80	.10				
371 - 375	49.70	20.55	17.70	12.05	6.35	.65				
375 - 379	50.25	21.15	18.30	12.60	6.90	1.20				
379 - 383	50.80	21.70	18.85	13.15	7.45	1.80				
383 - 387	51.40	22.25	19.40	13.70	8.00	2.35				
387 - 391	51.95	22.80	19.95	14.25	8.60	2.90				
391 - 395	52.50	23.35	20.50	14.85	9.15	3.45				
395 - 399	53.05	23.95	21.10	15.40	9.70	4.00				
399 - 403	53.60	24.50	21.65	15.95	10.25	4.60				
403 - 407	54.20	25.05	22.20	16.50	10.80	5.15				
407 - 411	54.75	25.60	22.75	17.05	11.40	5.70				
411 - 415	55.30	26.15	23.30	17.65	11.95	6.25	.55			
415 - 419	55.85	26.75	23.90	18.20	12.50	6.80	1.15			
419 - 423	56.40	27.30	24.45	18.75	13.05	7.40	1.70			
423 - 427	57.00	27.85	25.00	19.30	13.60	7.95	2.25			
427 - 431	57.55	28.40	25.55	19.85	14.20	8.50	2.80			
431 - 435	58.10	28.95	26.10	20.45	14.75	9.05	3.35			
435 - 439	58.65	29.50	26.70	21.00	15.30	9.60	3.95			
439 - 443	59.20	30.10	27.25	21.55	15.85	10.20	4.50			
443 - 447	59.80	30.65	27.80	22.10	16.40	10.75	5.05			
447 - 451	60.35	31.20	28.35	22.65	17.00	11.30	5.60			
451 - 455	60.90	31.75	28.90	23.25	17.55	11.85	6.15	.50		
455 - 459	61.45	32.30	29.50	23.80	18.10	12.40	6.75	1.05		
459 - 463	62.00	32.90	30.05	24.35	18.65	12.95	7.30	1.60		
463 - 467	62.60	33.45	30.60	24.90	19.20	13.55	7.85	2.15		
467 - 471	63.15	34.00	31.15	25.45	19.80	14.10	8.40	2.70		
471 - 475	63.70	34.55	31.70	26.05	20.35	14.65	8.95	3.30		
475 - 479	64.25	35.10	32.30	26.60	20.90	15.20	9.55	3.85		
479 - 483	64.80	35.70	32.85	27.15	21.45	15.75	10.10	4.40		
483 - 487	65.40	36.25	33.40	27.70	22.00	16.35	10.65	4.95		
487 - 491	65.95	36.80	33.95	28.25	22.60	16.90	11.20	5.50		
491 - 495	66.50	37.35	34.50	28.85	23.15	17.45	11.75	6.10	.40	
495 - 499	67.05	37.90	35.10	29.40	23.70	18.00	12.35	6.65	.95	
499 - 503	67.60	38.50	35.65	29.95	24.25	18.55	12.90	7.20	1.50	
503 - 507	68.20	39.05	36.20	30.50	24.80	19.15	13.45	7.75	2.05	
507 - 511	68.75	39.60	36.75	31.05	25.40	19.70	14.00	8.30	2.65	
511 - 515	69.30	40.15	37.30	31.65	25.95	20.25	14.55	8.90	3.20	
515 - 519	69.85	40.70	37.90	32.20	26.50	20.80	15.15	9.45	3.75	
519 - 523	70.40	41.30	38.45	32.75	27.05	21.35	15.70	10.00	4.30	
523 - 527	71.00	41.85	39.00	33.30	27.60	21.95	16.25	10.55	4.85	
527 - 531	71.55	42.40	39.55	33.85	28.20	22.50	16.80	11.10	5.45	
531 - 535	72.10	42.95	40.10	34.45	28.75	23.05	17.35	11.70	6.00	.30
535 - 539	72.65	43.50	40.70	35.00	29.30	23.60	17.90	12.25	6.55	.85
539 - 543	73.20	44.10	41.25	35.55	29.85	24.15	18.50	12.80	7.10	1.40
543 - 547	73.80	44.65	41.80	36.10	30.40	24.75	19.05	13.35	7.65	2.00
547 - 551	74.35	45.20	42.35	36.65	31.00	25.30	19.60	13.90	8.25	2.55
551 - 555	74.90	45.75	42.90	37.25	31.55	25.85	20.15	14.50	8.80	3.10

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Vous pouvez obtenir cette table sur TSD

British Columbia provincial tax deductions
 Effective January 1, 2009
 Weekly (52 pay periods a year)
**Also look up the tax deductions
 in the federal table**

Retenues d'impôt provincial de la Colombie-Britannique
 En vigueur le 1^{er} janvier 2009
 Hebdomadaire (52 périodes de paie par année)
**Cherchez aussi les retenues d'impôt
 dans la table fédérale**

Pay Rémunération	Provincial claim codes/Codes de demande provinciaux									
	0	1	2	3	4	5	6	7	8	9
From Less than De Moins de	Deduct from each pay Retenez sur chaque paie									
343 - 343	*	.00								
343 - 345	9.30	.20								
345 - 347	9.45	.35								
347 - 349	9.60	.50								
349 - 351	9.80	.65								
351 - 353	9.95	.80								
353 - 355	10.10	.95								
355 - 357	10.25	1.15	.10							
357 - 359	10.40	1.30	.25							
359 - 361	10.55	1.45	.40							
361 - 363	10.75	1.60	.60							
363 - 365	10.90	1.75	.75							
365 - 367	11.05	1.90	.90							
367 - 369	11.20	2.10	1.05							
369 - 371	11.35	2.25	1.20							
371 - 373	11.50	2.40	1.35							
373 - 375	11.70	2.55	1.55							
375 - 377	11.85	2.70	1.70							
377 - 379	12.00	2.90	1.85							
379 - 381	12.15	3.05	2.00							
381 - 383	12.30	3.20	2.15	.10						
383 - 385	12.45	3.35	2.30	.25						
385 - 387	12.65	3.50	2.50	.45						
387 - 389	12.80	3.65	2.65	.60						
389 - 391	12.95	3.85	2.80	.75						
391 - 393	13.10	4.00	2.95	.90						
393 - 395	13.25	4.15	3.10	1.05						
395 - 397	13.40	4.30	3.30	1.20						
397 - 399	13.60	4.45	3.45	1.40						
399 - 401	13.75	4.60	3.60	1.55						
401 - 403	13.90	4.80	3.75	1.70						
403 - 405	14.05	4.95	3.90	1.85						
405 - 407	14.20	5.10	4.05	2.00						
407 - 409	14.35	5.25	4.25	2.15	.10					
409 - 411	14.55	5.40	4.40	2.35	.30					
411 - 413	14.70	5.55	4.55	2.50	.45					
413 - 415	14.85	5.75	4.70	2.65	.60					
415 - 417	15.00	5.90	4.85	2.80	.75					
417 - 419	15.15	6.05	5.00	2.95	.90					
419 - 421	15.30	6.20	5.20	3.10	1.05					
421 - 423	15.50	6.35	5.35	3.30	1.25					
423 - 425	15.65	6.50	5.50	3.45	1.40					
425 - 427	15.80	6.70	5.65	3.60	1.55					
427 - 429	15.95	6.85	5.80	3.75	1.70					
429 - 431	16.10	7.00	5.95	3.90	1.85					
431 - 433	16.25	7.15	6.15	4.10	2.00					
433 - 435	16.45	7.30	6.30	4.25	2.20	.15				
435 - 437	16.60	7.45	6.45	4.40	2.35	.30				
437 - 439	16.75	7.65	6.60	4.55	2.50	.45				
439 - 441	16.90	7.80	6.75	4.70	2.65	.60				
441 - 443	17.05	7.95	6.90	4.85	2.80	.75				
443 - 445	17.20	8.10	7.10	5.05	2.95	.90				
445 - 447	17.40	8.25	7.25	5.20	3.15	1.10				
447 - 449	17.55	8.40	7.40	5.35	3.30	1.25				
449 - 451	17.70	8.60	7.55	5.50	3.45	1.40				

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