



Essentials of Mathematics 10

Examination Booklet

Sample Exam B

(updated October 2006)

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. Use a pencil to fill in bubbles when answering questions on your Answer Sheet.
3. When answering **Numerical-Response** questions on your Answer Sheet:

- print digits as illustrated:



- shade the bubble with the negative symbol if the answer is negative; shade or leave blank the bubble with the positive symbol if the answer is positive.
- write your answer in the spaces provided using one digit per box, noting proper place value.
- leave unused boxes blank. For example, the answer -70.6 will be written as shown:



4. When using your calculator:
 - use the programmed value of π rather than the approximation of 3.14.
 - rounding should occur 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.

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
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>


1. Which account would Jack's father have chosen 17 years ago to regularly put aside money for Jack's university or post-secondary education?
- A. Value account
 - B. Savings account
 - C. Full-serve account
 - D. Self-serve account

Use the following information to answer question 2.

Option A:	\$4.95 per month; \$0.50 per self-serve transaction, including withdrawals and deposits \$0.50 per full-serve transaction
Option B:	\$10.95 per month; unlimited self-serve transactions; \$1.00 per full-serve transaction

2. Hinbi is shopping for a new bank account. She will be making 4 bank machine deposits per month, 2 full-serve transactions per month plus 8 withdrawals at an ATM per month. Which option is less expensive, and by how much?
- A. Option A; \$1.00 less expensive
 - B. Option B; \$1.00 less expensive
 - C. Option A; \$6.00 less expensive
 - D. Option B; \$6.00 less expensive

Use the following tables to answer question 3.

 BANK OF EVERMORE Blue Harbour, B.C. Statement of Account				
Balance Forward	Withdrawal	Deposit	Date	Balance
				100.01
Deposit		500.00	01/06	600.01
Cheque 17	43.17		02/06	556.84
Cheque 18	36.21		03/06	520.63
Service charge	10.00		03/06	510.63

Transaction Record					
Cheque #	Date	Description	Payment/Debit	Deposit/Credit	Balance
					100.01
<i>Deposit</i>	<i>June 1</i>	<i>Pay</i>		500.00	600.01
<i>Cheque 17</i>	<i>June 1</i>	<i>BC Hydro</i>	43.71		556.30
<i>Cheque 18</i>	<i>June 1</i>	<i>Telus</i>	36.21		520.09
<i>Cheque 19</i>	<i>June 1</i>	<i>Rent</i>	400.00		120.09

3. Given the statement of account and the transaction record, which **best** explains why they do not balance?

I.	Service charge
II.	Cheque not recorded
III.	Personal recording error
IV.	Cheque has not cleared the bank

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

Use the following transaction record to answer question 4.

Transaction Record						
Cheque #	Date	Description	Payment/ Debit	✓	Deposit/ Credit	Balance \$600.54
204	July 16		54.62			
	July 17				256.32	
	July 17				40.00	

4. What is Carlee's final balance?

Record your answer neatly on the Answer Sheet.

5. Craig is a full-time post-secondary student. He maintains a \$300.00 balance in a Self-Serve account. He makes 25 self-serve transactions each month and keeps a passbook. What are his monthly charges?
- A. \$5.98
 - B. \$7.98
 - C. \$9.45
 - D. \$11.45

Use the following Statement of Reconciliation to answer question 6.

BANK OF EVERMORE Blue Harbour, B.C.		Statement of Reconciliation	
Bank Statement		Transaction Record	
FINAL BALANCE shown on this statement	\$672.41	FINAL BALANCE shown on transaction record	\$562.47
ADD DEPOSITS made after the statement date	\$250.00	SUBTRACT WITHDRAWALS which are not shown on transaction record	\$51.35
SUBTOTAL \$	\$922.41		
SUBTRACT WITHDRAWALS made after the statement date	\$411.29		
FINAL BALANCE \$?	FINAL BALANCE \$?

6. What is the FINAL BALANCE in the statement of reconciliation above?

- A. \$261.12
- B. \$511.12
- C. \$613.82
- D. \$1433.53

Use the following ATM receipt to answer question 7.

Bank of Evermore		
Card No. 6521*****4532		
Date:	Time:	ATM:
30/05/06	10:01	1234
Value Account		
Deposit	\$ 23.00	
Account Balance	\$ 522.00	
Transaction Record VT47-9035		

7. What was the account balance **before** the ATM transaction?
- A. \$548.00
 - B. \$545.00
 - C. \$522.00
 - D. \$499.00
8. Winona works 7 h and 45 min. Expressed as a decimal, how many hours did she work?
- A. 7.45
 - B. 7.55
 - C. 7.65
 - D. 7.75
9. Todd worked from 10:12 a.m. to 4:35 p.m. What is the time he worked in hours expressed to two decimal places?
- A. 5.77
 - B. 6.23
 - C. 6.38
 - D. 6.78

10. Mary earns \$8.50 per hour and works 40 h per week. Place the following in order from **least to greatest**. Use claim code 1.

Employment Insurance	(EI)
Canada Pension Plan	(CPP)
Provincial Tax	(BC)
Federal Tax	(FED)

- A. BC, FED, EI, CPP
 B. EI, CPP, FED, BC
 C. EI, BC, CPP, FED
 D. FED, CPP, BC, EI
11. Mike earns \$9.50/h . He works 35 h each week. His deductions are 15% of his gross pay. What are his net earnings?
- A. \$49.88
 B. \$282.63
 C. \$332.50
 D. \$382.38
12. How many hours did Moe work in one week? (Answer in hours to one decimal place.)

Moe's Timecard

Monday	7.5
Tuesday	7.5
Wednesday	8.5
Thursday	9
Friday	7.5
Saturday	3
Sunday	2.5

Record your answer neatly on the Answer Sheet.

13. Kelly's family takes \$500 on their holiday. They budget $\frac{1}{4}$ of it for entertainment, $\frac{1}{8}$ of it for gasoline and $\frac{2}{5}$ of it for food. **About** how much money would be left for other things?
- A. \$0 – \$50
 - B. \$50 – \$100
 - C. \$100 – \$150
 - D. \$150 – \$200
14. Kelly earns \$340.00 per week. What will be the net amount of Kelly's pay cheque after her EI, CPP, and Federal and Provincial tax deductions? Use claim code 1.
- A. \$249.01
 - B. \$258.66
 - C. \$272.86
 - D. \$282.51
15. The pastry chef at the restaurant earns \$804.00 every 2 weeks. If he works a regular 40-hour week, what is his hourly wage?
- A. \$8.10
 - B. \$10.05
 - C. \$10.50
 - D. \$20.10
16. A technician charged Wally \$74.20 for parts and \$28/h for labour to repair his cash register. A tax of 7% is charged on both parts and labour, and an additional 7% tax is applied only to parts. It took 2.5 h to repair the register. Which amount **best** shows the approximate total repair bill?
- A. \$164.00
 - B. \$159.00
 - C. \$154.00
 - D. \$144.00

17. To identify a particular cell location in a spreadsheet, which one of the following is used?
- A. two letters
 - B. two numbers
 - C. column then row
 - D. row then column

Use the following information to answer question 18.

	A	B	C
1	Hours	Rate	Pay
2	8	8.50	
3			
4			

18. Which formula would be inserted into cell C2?
- A. = A1 + B1
 - B. = A1 * B1
 - C. = A2 + B2
 - D. = A2 * B2

Use the following spreadsheet to answer questions 19 and 20.

	A	B	C	D	E
1	Name	Assignments	Project	Tests	Final Mark
2		120	80	60	= B2 + C2 + D2
3	Crystal	88	75	31	= (B3 + C3 + D3)/260 * 100
4	David	72	58	39	
5	Erin	103	64	48	
6					
7					
8	Class Average				= AVERAGE (E3:E5)

19. What value will be produced by the formula entered in E3? (Round to a whole number.)

Record your answer neatly on the Answer Sheet.

20. Cells E4 and E5 contain similar formulae to E3. What is the value in E8?

- A. 74
- B. 75
- C. 78
- D. 79

21. What does GST stand for?

- A. General Sales Tax
- B. Government Sales Tax
- C. Goods and Services Tax
- D. Government Services Tax

22. Supplies for making 50 candles cost \$100 for wax, \$5 for wicks, \$15 for colours/dyes, \$50 for scents and \$150 for promotion. How much should be charged per candle to make a \$100 profit?
- A. \$2.00
 - B. \$4.20
 - C. \$5.20
 - D. \$8.40
23. A recipe calls for $4\frac{1}{2}$ cups of flour to $\frac{2}{3}$ cups of sugar. How many cups of sugar would you use with $2\frac{1}{4}$ cups of flour?
- A. $\frac{1}{6}$
 - B. $\frac{1}{3}$
 - C. $1\frac{1}{3}$
 - D. $2\frac{11}{12}$

Use the following information to answer questions 24 and 25.

	A	B	C
1	Hours	Rate	Pay
2	8	8.50	?
3			

24. Which formula would be inserted into cell C2?

- A. = A2 + B2
- B. = A2 * B2
- C. = A2 – B2
- D. = A2/B2

25. If the rate increased by 10%, what is the new value in C2?

- A. 70.40
- B. 68.80
- C. 68.68
- D. 67.20

26. The length to width ratio of a certain rectangle is 8:3. What is the perimeter of the rectangle if its length is 48 cm?

- A. 102 cm
- B. 132 cm
- C. 176 cm
- D. 352 cm

27. Sonny bought six cans of pop for \$2.39, a 12-pack for \$4.98 and a 24-pack for \$9.98. What was the total before taxes? (Answer in dollars and cents.)

Record your answer neatly on the Answer Sheet.

28. Gas costs 71.5 cents per litre. How many litres can be purchased for \$20.00?
- A. 0.28
 - B. 3.58
 - C. 14.30
 - D. 27.97
29. A calculator is marked down from \$18.00 to \$14.00. Approximately what is the percent decrease?
- A. 4
 - B. 12
 - C. 22
 - D. 77
30. How much would be saved if a \$10 000 ring is purchased in Alberta rather than in Quebec?
- A. \$600
 - B. \$750
 - C. \$1500
 - D. \$7500

31. In a Canadian ballpark the distance from home plate to the centrefield is 125 m. In an American ballpark the distance from homeplate to the centrefield fence is 400 feet. Which ballpark has the longer distance and by how much?

- A. an American ballparks by 9.8 m
- B. a Canadian ballpark by 3 m
- C. an American ballpark by 3 m
- D. a Canadian ballpark by 9.8 m

32. To measure the length of a room, which of the following units would be appropriate?

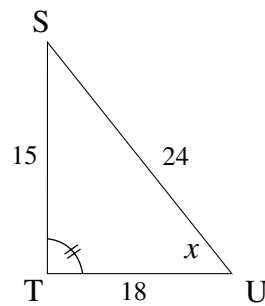
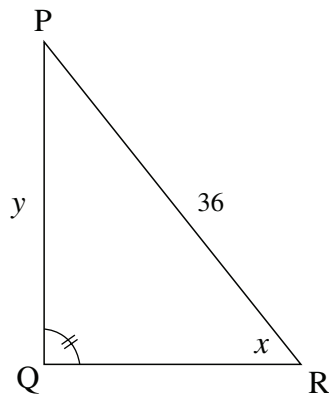
I.	Yards
II.	Square feet
III.	Metres
IV.	Cubic centimetres

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

33. Sine is to hypotenuse as tangent is to which of the following?

- A. adjacent
- B. cosine
- C. opposite
- D. hypotenuse

34. What is the value of y ? (Answer to one decimal place.)

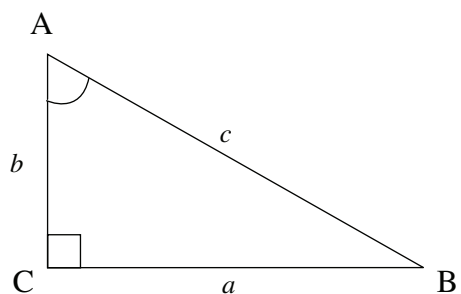


Record your answer neatly on the Answer Sheet.

35. A 20 m tower casts a shadow 7.8 m long. At the same time a tree's shadow is 5.2 m long. Which of the following is the height of the tree in metres? (Round to the nearest tenth.)

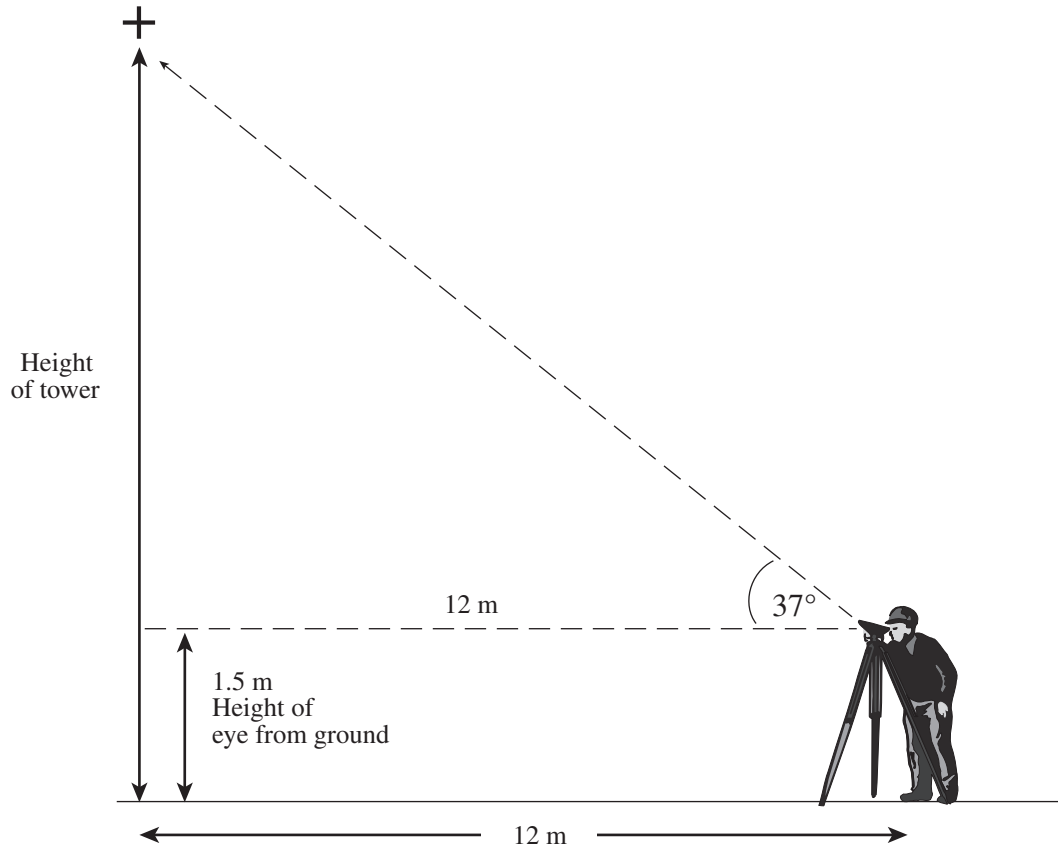
- A. 7.8 m
- B. 13.3 m
- C. 17.4 m
- D. 20.2 m

36. Given right triangle ABC with $a = 10$, $b = 4$, $c = 10.77$. What is the measure of $\angle A$?



- A. 22°
- B. 43°
- C. 47°
- D. 68°

Use the following information to answer questions 37 and 38.



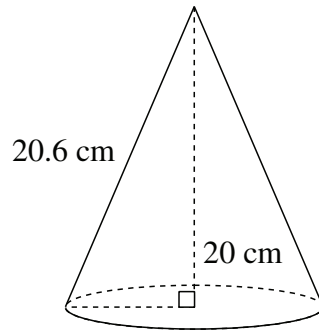
37. Which trigonometric ratio is most appropriate to find the height of the tower?

- A. sine
- B. cosine
- C. tangent
- D. hypotenuse

38. How high is the tower from the ground? (Answer to the nearest tenth of a metre.)

- A. 9.0 m
- B. 9.6 m
- C. 10.5 m
- D. 11.1 m

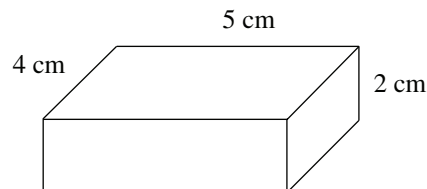
Use the following diagram to answer question 39.



39. If the base of the cone has a radius of 5 cm what is its volume?

- A. 104.7 cm^2
- B. 523.6 cm^2
- C. 539.3 cm^2
- D. 1570.8 cm^2

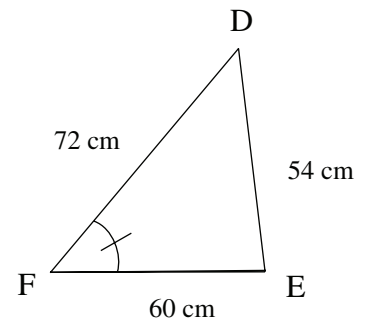
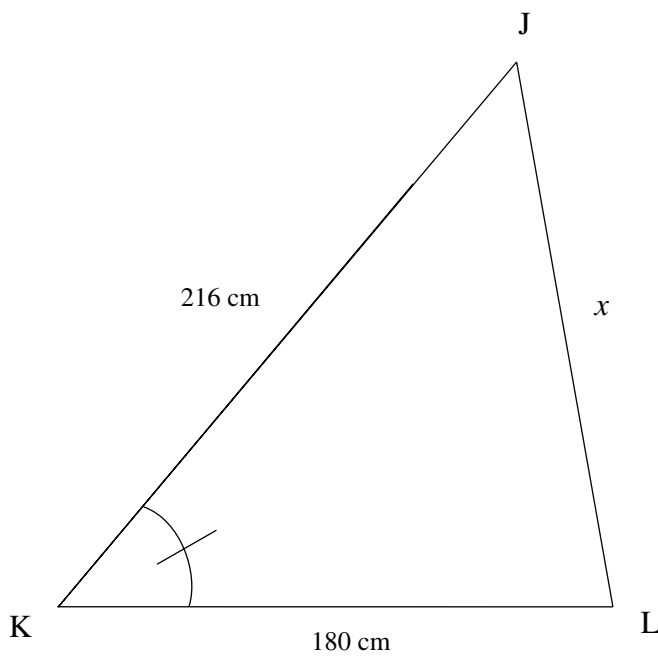
40. The surface area of a rectangular solid is 76 cm^2 . If the height is doubled, by how much does the surface area increase?



- A. 10 cm^2
- B. 16 cm^2
- C. 20 cm^2
- D. 36 cm^2

41. In geography class, Wayne learned about Chile. Chile has a land area of $756\,945\text{ km}^2$. the land area of the entire earth is $150\,000\,000\text{ km}^2$. Approximately how many times larger is the land area of the earth compared to the land area of Chile?
- A. 100–200 times
 - B. 201–300 times
 - C. 301–400 times
 - D. 400–500 times

Use the following diagrams to answer question 42.

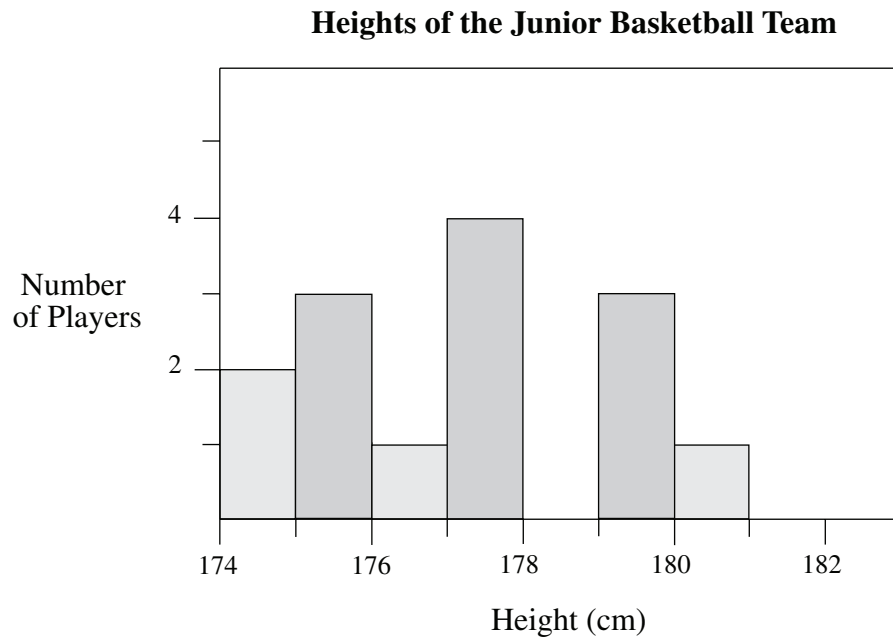


42. In the above similar triangles, what is the value of x in cm?

Record your answer neatly on the Answer Sheet.

43. An aircraft passenger compartment is approximately 60 feet long, 8 feet wide and 7 feet high. What is the best **estimate** of the volume of air in the compartment?
- A. 75 ft^2
 - B. 75 ft^3
 - C. 3000 ft^3
 - D. 3360 ft^2
44. Which measure best describes a point between $2\frac{3}{4}$ inches and $3\frac{1}{2}$ inches?
- A. 9.0 cm
 - B. 7.8 cm
 - C. 2.8 cm
 - D. 1.3 cm
45. A scale drawing shows a mosquito at 60 times its actual size. If the drawing is 30 cm long, what is the actual length of the mosquito?
- A. 5 cm
 - B. 2 mm
 - C. 5 mm
 - D. 0.05 cm

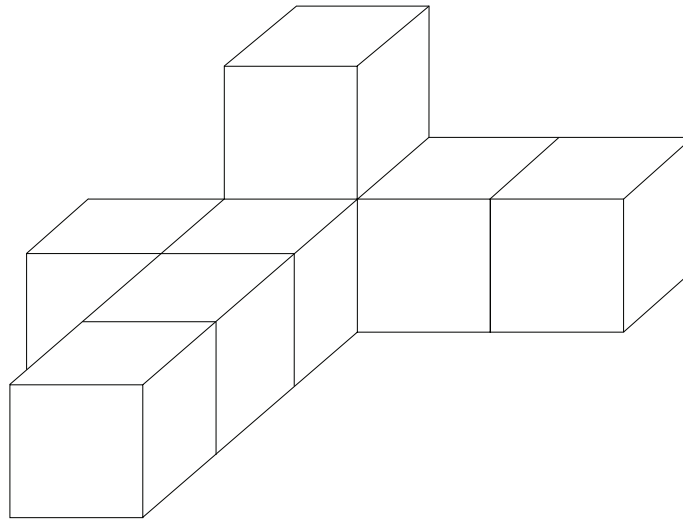
Use the following graph to answer question 46.



46. How many players are less than 178 cm tall?

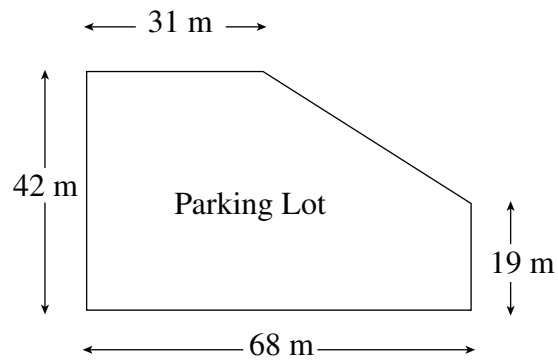
Record your answer neatly on the Answer Sheet.

47. What is the total cost of material required to cover this object, including the bottom, if material costs $\$0.60/\text{cm}^2$. Each cube is 1 cm^3 .



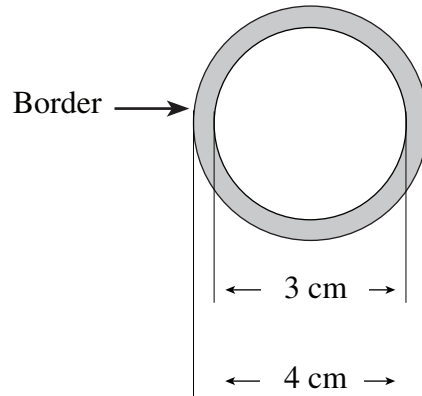
- A. $\$10.20$
- B. $\$20.40$
- C. $\$21.60$
- D. $\$28.80$

48. Wally wants to repave his parking lot. If asphalt costs $\$10.00/\text{m}^2$, approximately how much would it cost to repave the entire area?



- A. $\$22\,000.00$
- B. $\$24\,000.00$
- C. $\$26\,000.00$
- D. $\$28\,000.00$

49. Andrea is making a circular poster in the school shop. What is the border of the poster?



- A. 5.50 cm
- B. 3.15 cm
- C. 7.00 cm
- D. 19.64 cm

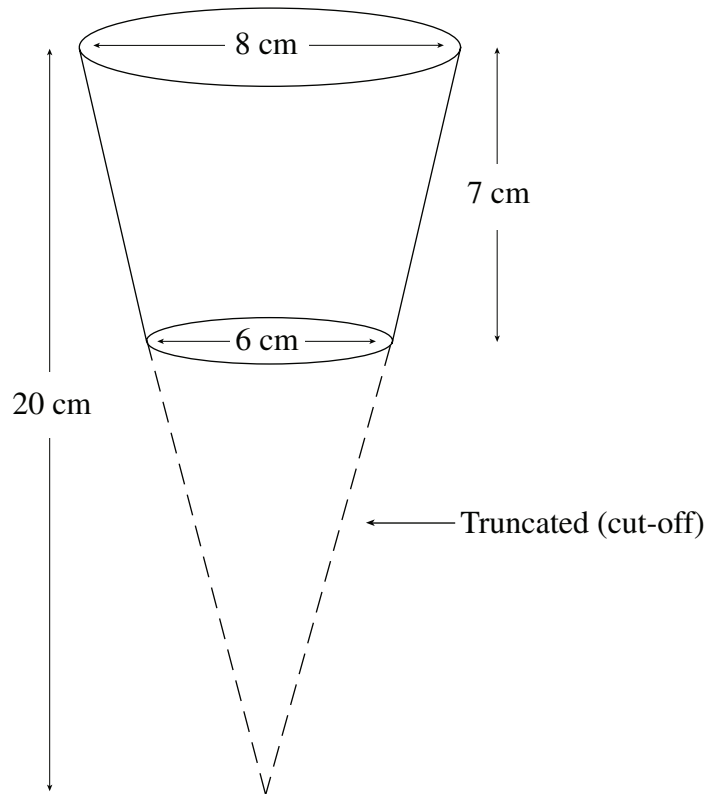
Use the following information to answer questions 50 to 52.

Countries	Percentage	People
China	25%	
Canada	44%	
Japan	19%	
Vietnam	5%	
Estonia	2%	
Russia	5%	
Total		150 people

The table above shows the results of a telephone survey asking 150 people their country of origin.

50. To show the data in a circle graph, how many degrees should China's representation be on the graph?
- A. 90°
 - B. 160°
 - C. 162°
 - D. 180°
51. According to the table above, how many people were born in Russia?
- A. 1–5
 - B. 6–10
 - C. 11–15
 - D. 16–20
52. The data above has to be transferred to a circle graph. Which country should be represented with an angle of about 160° ?
- A. Vietnam
 - B. Canada
 - C. Japan
 - D. Russia

Use the following diagram to answer question 53.



53. The yogurt container in the diagram is in the form of a truncated cone. What is the volume of the yogurt container? (Answer to the nearest cubic centimetre.)

- A. 213 cm^3
- B. 269 cm^3
- C. 335 cm^3
- D. 850 cm^3

54. Brushy Creek School has 800 students. Students were asked to vote for a new mascot. The results were that 22 preferred an eagle, 36 preferred a tiger and 42 preferred an armadillo. What is the sample size?

Record your answer neatly on the Answer Sheet.

55. What score needs to be achieved on the next test for a mean of 74 if the previous scores are 72, 68, 81, 76 and 57?
- A. 19.2
 - B. 74
 - C. 89
 - D. 90

56. A sprinter recorded his times as follows:

9.2, 8.8, 9.0, 9.2, 10.4, 9.2, 8.8, 8.7, 9.1

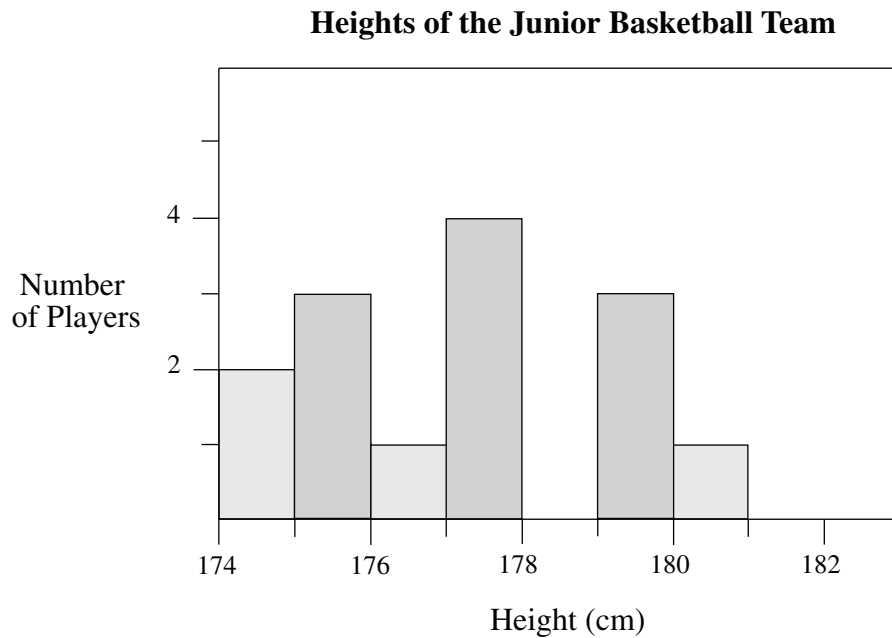
What is the median?

- A. 9.0
 - B. 9.1
 - C. 9.2
 - D. 10.4
57. What number could be added to the numbers below so that the mean, median and mode are the same?

18	12	19
15	27	23

- A. 27
- B. 23
- C. 19
- D. 18

Use the following graph to answer question 58.



58. How many players are on the team?

- A. 11
- B. 12
- C. 13
- D. 14

59. Rank the following in order from what would be expected to be the most accurate to the least accurate method of data collection about Canadian's favourite TV show.

I.	All Canadians surveyed
II.	1000 randomly selected Canadians
III.	1000 people from Vancouver
IV.	Everyone in B.C.

- A. I, II, III, IV
- B. IV, I, III, II
- C. I, IV, II, III
- D. I, II, IV, III

60. Organizers of this year's bass fishing tournament are trying to estimate how many bass will be caught. Before the tournament started, they found that three out of the 30 boats on the lake caught 10, 8, and 17 bass. Using the quadrant method, which answer is the best estimate of the number of bass that will be caught during the tournament?
- A. 116
 - B. 170
 - C. 300
 - D. 350

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"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input 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 this 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 a student breaks any of the following rules:
 - Candidates must not give or receive assistance of any kind in answering an examination question during an examination, including allowing one's paper to be viewed by others or copying answers from another student's paper.
 - Candidates 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.
 - Candidates 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.
 - Candidates must not communicate with another student during the examination.
 - Candidates must not remove any piece of the examination materials from the examination room, including work pages.
 - Candidates must not take or knowingly use any secure examination materials prior to the examination session.
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.