



GRADE 10 ESSENTIAL
MATHEMATICS (20S)

Midterm Practice Exam

GRADE 10 ESSENTIAL MATHEMATICS

Midterm Practice Examination

Name: _____

Student Number: _____

Attending Non-Attending

Phone Number: _____

Address: _____

For Marker's Use Only

Date: _____

Final Mark: _____ /100 = _____ %

Comments:

Instructions

The midterm examination will be weighted as follows:

Modules 1–4	100%
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The format of the examination will be as follows:

Part A: Multiple Choice	9 marks
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Part B: Long Answer	91 marks
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Time allowed: 2.5 hours

Note: You are allowed to bring the following to the exam: pens/pencils (2 or 3 of each), blank paper, a scientific or graphing calculator, a ruler, a protractor, a compass, and your Midterm Exam Resource Sheet. Your Midterm Exam Resource Sheet must be handed in with the exam. You will receive your Midterm Exam Resource Sheet back from your tutor/marker with the next module work that is submitted for marking. **Diagrams may not be drawn to scale.**

Part A: Multiple Choice (9 x 1 = 9 marks)

Circle the letter of the correct answer for each question.

1. A best estimate of the amount of liquid a soda can holds is
 - a) 350 litres
 - b) 35 gallons
 - c) 350 mL
 - d) 350 fl. oz.

2. CPP is known as
 - a) income from the federal government when between jobs
 - b) retirement income from the federal government
 - c) amount deducted from gross earnings
 - d) a savings plan

3. Overtime pay may be defined as
 - a) earnings after deductions have been taken off
 - b) earnings before any deductions have been taken off
 - c) earnings for more than 8 hours per day
 - d) income from the government when you are laid off from your job

4. Deductions are defined as
 - a) earnings after deductions have been taken off
 - b) earnings before deductions have been taken off
 - c) earnings more than 8 hours per day
 - d) amount that gross pay is reduced by

5. Workers are paid by piecework when
 - a) they work more than 40 hours per week
 - b) they work on weekends
 - c) they are paid based on the number of items they assemble
 - d) they work shift work

6. Workers who are paid by a commission are likely
- a) teenagers working part-time in fast food restaurants
 - b) teachers, managers, government workers
 - c) car salespeople, realtors, insurance salesmen
 - d) commissionaires and security people
7. The heaviest measurement is
- a) kilogram
 - b) pound
 - c) ounce
 - d) gram
8. The smallest unit of measurement on a standard imperial ruler is
- a) $\frac{1}{4}$ "
 - b) $\frac{1}{2}$ "
 - c) $\frac{1}{8}$ "
 - d) $\frac{1}{16}$ "
9. A square measuring one yard by one yard has an area of
- a) 144 sq. ft
 - b) 9 sq. ft.
 - c) 3 sq. ft.
 - d) 36 square inches

Part B: Long Answer (91 marks)

Write your answers in the space provided.

1. Nancy is paid overtime on any hours worked over 8 per day. Using this time card, identify how many regular hours and how many overtime hours she worked last week. (2 marks)

Monday	Tuesday	Wednesday	Thursday	Friday
6	11.5	7.5	9.25	9.5

Regular: _____

Overtime: _____

2. Identify four methods you studied by which workers can earn income. (4 marks)

3. Explain why a salesman might prefer to be paid by commission. Also, describe what would be needed for the salesman to succeed. (2 marks)

4. Jon offers to totally landscape his aunt's yard for \$2000. This is an example of earning income by what method? (1 mark)
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5. Fill in the time card to find the gross pay. Overtime is paid at time and one-half on any hours over 40 hours per week. There are no late penalties. (7 marks)

Employee: Scott					Hourly Rate: \$11.75		
Day	Morning In	Out	Afternoon In	Out	Evening In	Out	Total
Mon.	07:30	12:00	1:00	5:00	7:30	9:45	
Tues.	07:29	11:59	12:58	4:30			
Wed.			1:00	5:30	7:30	10:15	
Thurs.	07:30	12:02	1:01	5:32	7:00	10:30	
Fri.	08:00	12:00	1:02	5:00			
Sat.			1:00	4:45			
Sun.							
		Hours		Rate		Amount	
Regular							
Overtime							
Total Hours				Gross Wages			

6. List six possible deductions one might expect from their gross earnings. (6 marks)

7. Jessica earns \$11.44 per hour. She works 35 hours. Use the payroll deduction tables to find her net pay. Her claim code is 0. (7 marks)

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

Pay Rémunération		CPP RPC	Pay Rémunération		CPP RPC
From - De	To - Á		From - De	To - Á	
399.93	- 400.12	16.47	438.11	- 438.31	18.36
400.13	- 400.33	16.48	438.32	- 438.51	18.37
400.34	- 400.53	16.49	438.52	- 438.71	18.38
400.54	- 400.73	16.50	438.72	- 438.91	18.39
400.74	- 400.93	16.51	438.92	- 439.11	18.40
400.94	- 401.13	16.52	439.12	- 439.32	18.41
401.14	- 401.34	16.53	439.33	- 439.52	18.42
401.35	- 401.54	16.54	439.53	- 439.72	18.43
401.55	- 401.74	16.55	439.73	- 439.92	18.44

Employment Insurance Premiums

Insurable Earnings Rémunération assurable		EI premium Cotisation d'AE	Insurable Earnings Rémunération assurable		EI premium Cotisation d'AE
From - De	To - Á		From - De	To - Á	
395.67	- 396.24	6.85	437.29	- 437.86	7.57
396.25	- 396.82	6.86	437.87	- 438.43	7.58
396.83	- 397.39	6.87	438.44	- 439.01	7.59
397.40	- 397.97	6.88	439.02	- 439.59	7.60
397.98	- 398.55	6.89	439.60	- 440.17	7.61
398.56	- 399.13	6.90	440.18	- 440.75	7.62
399.14	- 399.71	6.91	440.76	- 441.32	7.63
399.72	- 400.28	6.92	441.33	- 441.90	7.64
400.29	- 400.66	6.93	441.91	- 442.48	7.65

Federal tax deductions

Effective January 1, 2009

Weekly (52 pay periods a year)

**Also look up the tax deductions
in the provincial table**

Pay Rémunération		Federal claim codes/ Codes de demande			
		0	1	2	3
From De	Less than Moins de	Deduct from each pay Retenez sur chaque paie			
399	- 403	53.60	24.50	21.65	15.95
403	- 407	54.20	25.05	22.20	16.50
407	- 411	54.75	25.60	22.75	17.05
411	- 415	55.30	26.15	23.30	17.65
415	- 419	55.85	26.75	23.90	18.20
419	- 423	56.40	27.30	24.45	18.75
423	- 427	57.00	27.85	25.00	19.30
427	- 431	57.55	28.40	25.55	19.85
431	- 435	58.10	28.95	26.10	20.45
435	- 439	58.65	29.50	26.70	21.00
439	- 443	59.20	30.10	27.25	21.55

Manitoba provincial tax deductions

Effective January 1, 2009

Weekly (52 pay periods a year)

**Also look up the tax deductions
in the federal table**

Pay Rémunération		Provincial claim codes/ Codes de demande			
		0	1	2	3
From De	Less than Moins de	Deduct from each pay Retenez sur chaque paie			
397	- 401	40.55	23.70	21.90	18.40
401	- 405	41.00	24.10	22.30	18.80
405	- 409	41.40	24.50	22.75	19.20
409	- 413	41.80	24.90	23.15	19.60
413	- 417	42.20	25.30	23.55	20.00
417	- 421	42.60	25.70	23.95	20.40
421	- 425	43.00	26.10	24.35	20.80
425	- 429	43.40	26.50	24.75	21.25
429	- 433	43.80	26.90	25.15	21.65
433	- 437	44.20	27.30	25.55	22.05
437	- 441	44.60	27.70	25.95	22.45

Gross earnings: _____

CPP: _____

EI: _____

Federal income tax, claim code 0: _____

Manitoba income tax, claim code 0: _____

Total deductions: _____

Net pay: _____

8. Joey works at a sporting goods store assembling bicycles. He gets paid \$12 for each bike he assembles, but loses \$8 for every bike that is not put together properly. Last week he worked 60 hours to assemble 65 bicycles before a big sale. The boss brought 11 bikes back because they were missing parts. Calculate Joey's income earned. (1 mark)

9 How much more federal income tax will you pay if you get a \$1 per hour raise, assuming you earn \$10 per hour, work 40 hours per week, and use claim code 2. (1 mark)

10. Jamie earns a salary of \$40,040.00 per year. She pays \$10 for union dues and \$15 for parking. Use 4.95% for CPP, 1.73% for EI, and 29% for the combined federal and provincial income taxes to find her net weekly pay. (7 marks)

Gross weekly earnings: _____

CPP: _____

EI: _____

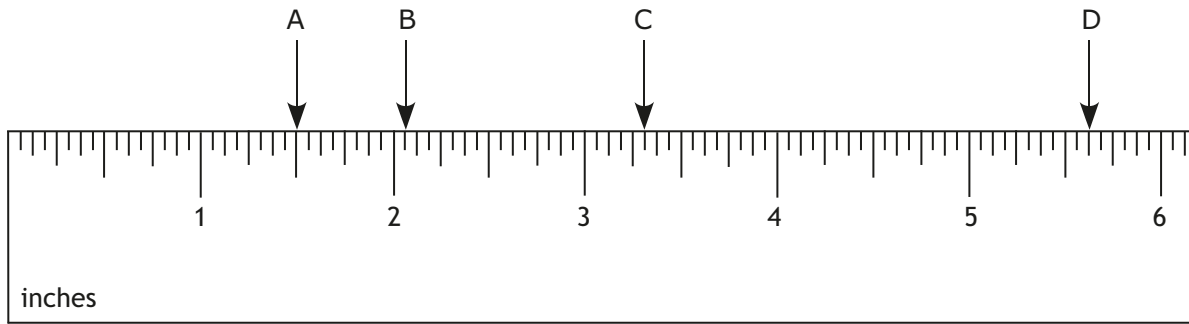
Income tax: _____

Other deductions: _____

Total deductions: _____

Net pay: _____

12. Find the readings on this imperial ruler. (4 marks)



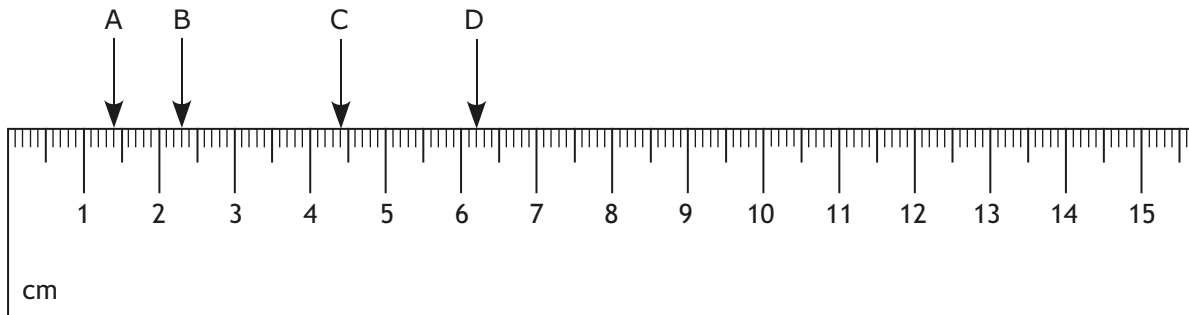
A _____

B _____

C _____

D _____

13. Record the readings in centimetres on this metric ruler. (4 marks)



A _____

B _____

C _____

D _____

14. Given that the temperature is 110°F , find the equivalent Celsius temperature by using the formula. Show your work. (3 marks)

15. Use the conversion table to convert the following. Round off to two decimal places. Show your work. (4 marks)

Basic Conversion Formulas between Systems	
Mass	1 kg = 2.2 pounds 454 g = 1 pound 28.4 grams = 1 ounce
Capacity	1 gallon (Canadian) = 4.54 L 1 fl. oz. (Canadian) = 28.41 mL 1 gallon (American) = 3.785 L 1 fl. oz. (American) = 29.57 mL
Distance	1 mile = 1.61 km 1 km = 0.62 mi. 1 inch = 2.54 cm 1 metre = 1.094 yards

a) $9 \text{ km} = \underline{\hspace{2cm}}$ miles

b) $25 \text{ fl. oz.} = \underline{\hspace{2cm}}$ mL (Canadian)

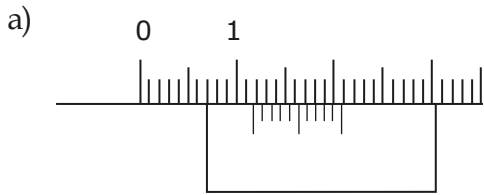
c) $150 \text{ pounds} = \underline{\hspace{2cm}}$ kg

d) 350 cm = _____ inches

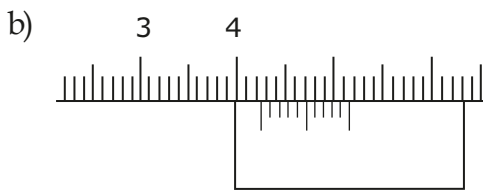
16. The distance from Winnipeg to Minneapolis is about 500 miles. How far is the distance in kilometres? The conversion rules are given in #15 above. (2 marks)

17. Record the metric Vernier caliper readings. (2 marks)

Note: Your answer will be marked correct if it is ± 0.02 from the given answer.

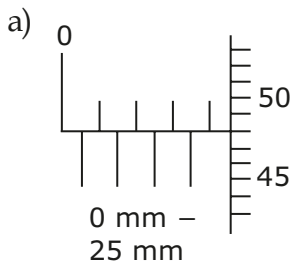


Reading = _____

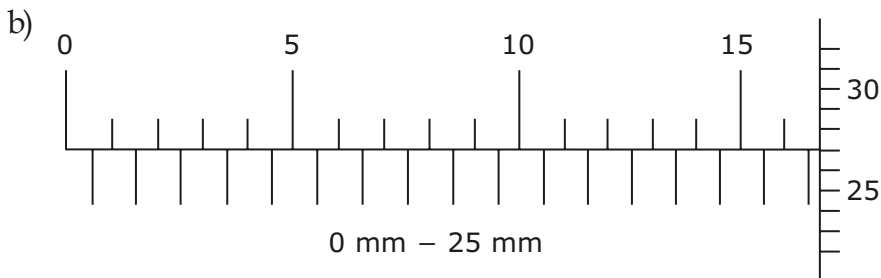


Reading = _____

18. Record the micrometer readings. (2 marks)



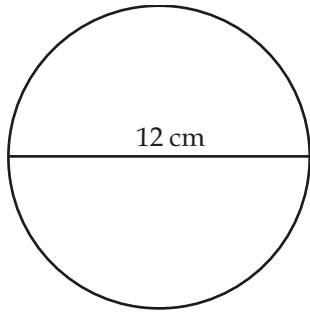
Reading = _____



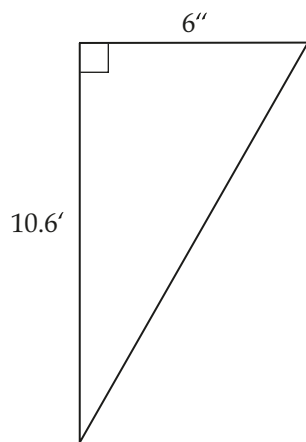
Reading = _____

19. Find the area of each shape. (9 marks)

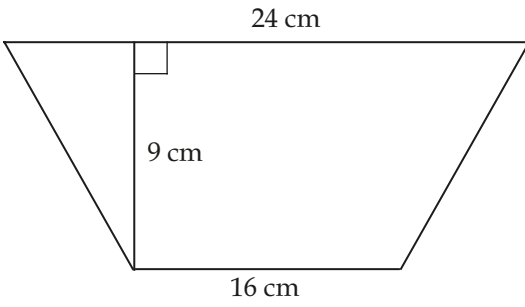
a)



b)



c)



20. You have enough sod to cover 300 m^2 of your lawn. Knowing the length of the lawn is 40 m, find the width. (2 marks)

21. You use a piece of string to find the direct distance between two points on a map. The length of the string is 4.6 cm long. The map scale is 1 cm: 200 miles. Find the direct distance between the points. (2 marks)

22. Convert the following measurements as indicated using the area conversions chart. Round off to two decimal places. (9 marks)

Imperial		Metric
1 in. ²		6.4516 cm ²
1 ft. ²	144 in. ²	0.0929 m ²
1 yd. ²	9 ft. ²	0.8361 m ²
1 acre	4840 yd. ²	4046.9 m ²
1 mile ²	640 acres	2.59 km ²

Metric		Imperial
1 cm ²	100 mm ²	0.1550 in. ²
1 m ²	10 000 cm ²	1.1960 yd. ²
1 hectare [ha]	10 000 m ²	2.4711 acres
1 km ²	100 ha	0.3861 mile ²

a) $4\frac{1}{4}$ yd.² to m² (1 mark)

b) 100 cm² to in.² (1 mark)

c) 640 in.² to m² (2 marks)

d) 102 square miles to km^2 (1 mark)

e) 4000 cm^2 to ft^2 (4 marks)

23. Multiply these fractions using the grid method. Write your answer as a mixed number.
(2 marks)

$$1\frac{3}{4} \times 7\frac{1}{2}$$

24. The cost of the new football stadium is predicted to be \$137,500,000. Write this number in scientific notation. (1 mark)

25. Madeline works in a bakery. She makes a minimum wage of \$9.25 per hour but has been offered a raise to \$10.05. What percent rate of increase is this? Round off to two decimal places. (2 marks)

Remember: Attach your Midterm Exam Resource Sheet to your exam paper and submit it along with your exam.

Notes