GRADE 10 ESSENTIAL MATHEMATICS (20S)

Final Practice Exam

Grade 10 Essential Mathematics

Final Practice Examination

Name: _____

Student Number: _____

Attending ❑ Non-Attending ❑

Phone Number: _____

Address: _____

_____

_____

For Marker's Use Only

Date: _____

Final Mark: _____ /100 = _____ %

Comments:

Instructions

The final examination will be weighted as follows:

Modules 5–8	100%

The format of the examination will be as follows:

Part A: Multiple Choice	10 marks
Part B: Long Answer	90 marks

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 Final Exam Resource Sheet. Your Final Exam Resource Sheet must be handed in with the exam. **Diagrams may not be drawn to scale.**

Part A: Multiple Choice (*10 x 1 = 10 marks*)

Circle the letter of the correct answer for each question.

1. Cos 55° =
   a) 1.42814
   b) 0.57358
   c) 0.81915
   d) 0.022126

2. If cos θ = 0.6691306, then θ =
   a) 48°
   b) 42°
   c) 33.8°
   d) 22.9°

3. If $\Delta ABC \sim \Delta PQR$, then
   a) AB = PQ
   b) $\angle A = \angle P$
   c) $a = b$
   d) $c = r$

4. The cost of 4 L of milk is $7.35. The unit cost per litre is
   a) $3.68
   b) $1.84
   c) $2.45
   d) $0.735

5. A 10% discount off an item priced at $30.00 would save you
   a) $3.00
   b) $27.00
   c) $10.00
   d) $1.00

6. The currency widely used across Europe is
   a) US dollar
   b) Japanese yen
   c) Euro
   d) Peso

7. A reflection of a shape is
   a) larger than the original
   b) smaller than the original
   c) distorted
   d) a mirror image

8. A rotation of a shape is
   a) a slide
   b) a translation
   c) a turn
   d) a mirror image

9. Which statement is true about angles with parallel lines with a transversal?
   a) All angles are 60°
   b) Interior alternate angles are complementary
   c) Corresponding angles are supplementary
   d) Exterior alternate angles are congruent

10. If two lines are perpendicular, they
   a) meet at a right angle
   b) are always the same distance apart
   c) never meet
   d) are supplementary

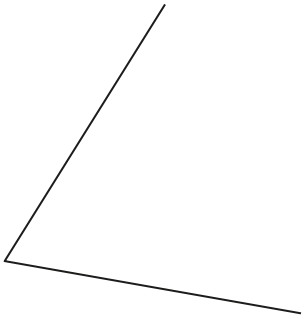
Part B: Long Answer (*90 marks*)

Write your answers in the space provided.

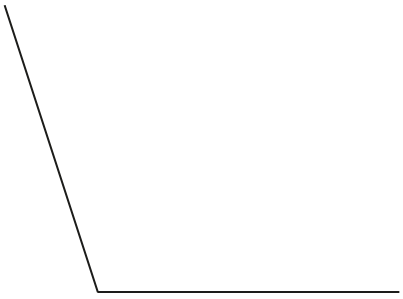
1. Explain what a right angle is. *(1 mark)*

2. Draw an example of two angles that are supplementary but do not have the same vertex. *(1 mark)*

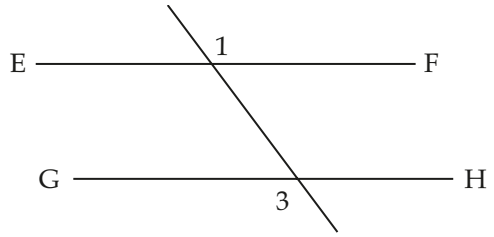
3. Use any method to copy the angle shown below, and describe the process you used. *(4 marks)*



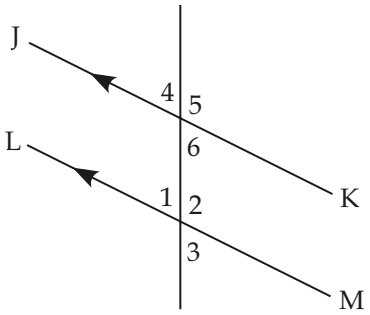
4. Use any method to bisect this angle, and describe the process you used. *(4 marks)*



5. Given ∠1 and ∠3 are congruent, explain why EF // GH. *(2 marks)*



6. Identify any four pairs of equal angles and give a reason why they are equal. You are given JK//LM. *(4 marks)*



7. Your new wage is $10.90 per hour. You were making $10.75 per hour. Find the percent rate of change. *(3 marks)*

8. Your job in the restaurant pays you $11.32 per hour. Your boss offers you either a 3% raise, or $0.35 per hour raise. Which is the better offer? Explain your reasoning. *(3 marks)*

9. Apple juice is sold in packages of various sizes.

   a) Find the unit price per 100 mL to determine the best buy. *(3 marks)*

   i) 350 mL for $1.05

   ii) 1 L for $3.15

   iii) 2 L for $5.95

   b) Give one reason why a person might want a smaller size, knowing it costs more. *(1 mark)*

10. Dane needs a new washer and dryer set, and the set he wants will cost $1345. Southdale Department Store has a promotion on where the store will pay the taxes. Charles' is having a 10% off all appliances sale. The Lighte has a 15% off sale on all appliances.

    a) Which is the best buy? *(4 marks)*

    b) State two other types of promotions that stores use. *(2 marks)*

    c) State two reasons why you would choose to go to a store with more expensive prices. *(2 marks)*

11. Griffen was planning a trip to Mexico and the southern United States. He budgeted for 18 200 pesos and $850 American dollars.

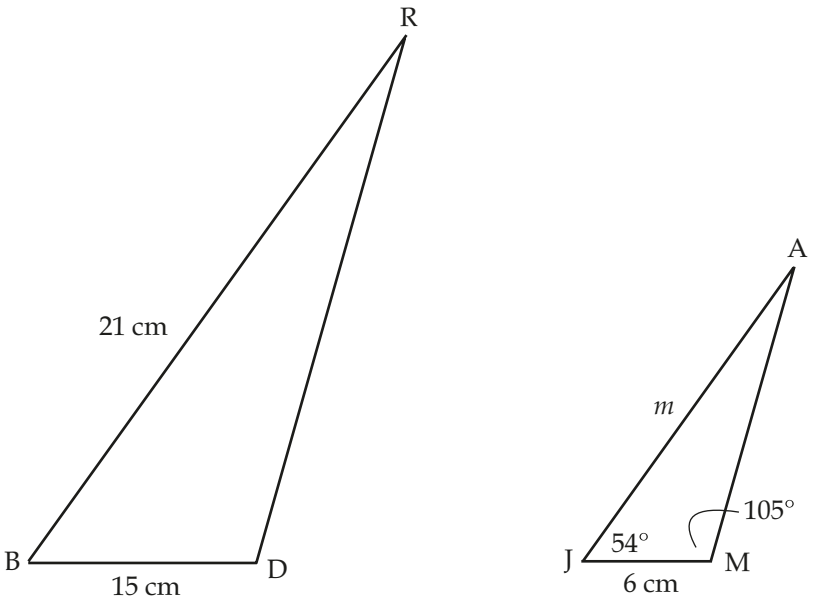
    a) Use the Currency Converter Chart to find the cost of obtaining these currencies from a bank. *(3 marks)*

Currency Converter as of February, 2009		
	Bank's Selling Rate	**Bank's Buying Rate**
Canadian Dollar	1	1
Mexican Peso	0.0909	00.0794
American Dollar	1.2634	1.2106

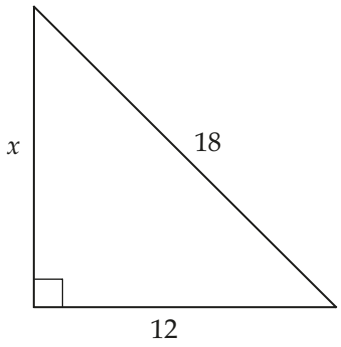
    b) Upon his return, Griffen had 1425 pesos and $52 American dollars to return to the bank. How much did he receive for this exchange? *(3 marks)*

12. You have $730 Canadian for a trip to Grand Forks. How much US currency can you get from the bank? Use the Currency Converter chart in #11 above. *(2 marks)*

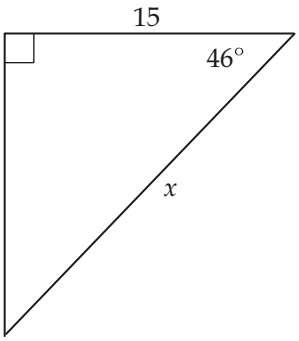
13. Given two similar triangles, ΔBRD ~ ΔJAM, as shown in the diagram below, find the length of *m* and the measure of ∠R. *(4 marks)*



14. Find the length of the missing side. Round off to two decimal places. *(3 marks)*

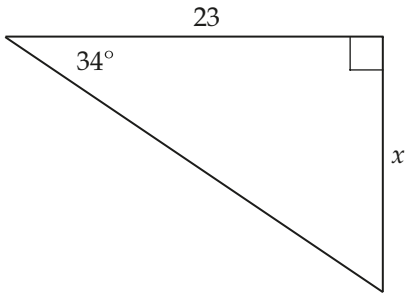


15. Determine the length of the missing side using a trigonometric ratio. Round off to two decimal places. *(3 marks)*



16. A cell phone tower is held in place by a cable 20 m long. The base of the cable is 14 m away from the base of the tower. Determine the height of the tower. *(4 marks)*

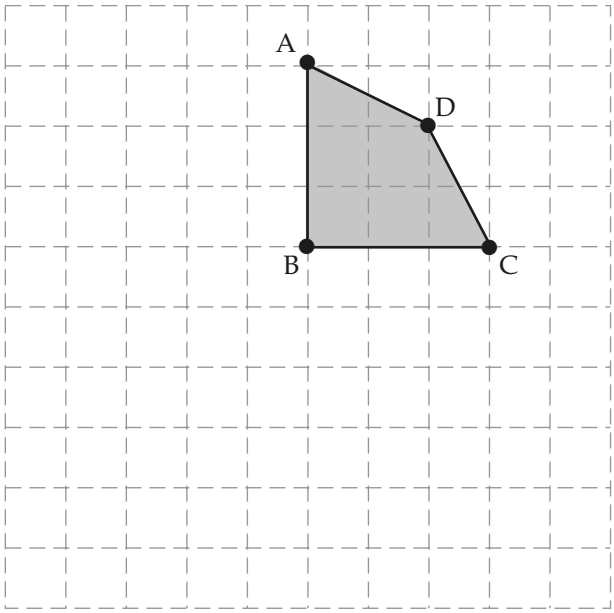
17. Find the missing side. Round off to two decimal places. *(3 marks)*



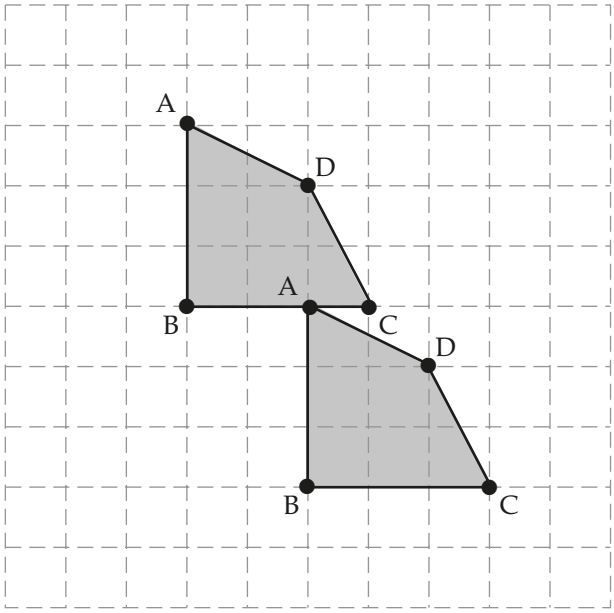
18. A hot air balloon is attached to a 25 m rope. The balloon is 15 m above the ground. Find the angle at which the rope is inclined to the ground. Draw the diagram, set up the appropriate trig ratio, and solve for θ. Round off to two decimal places. *(5 marks)*

19. A meteor is racing toward Earth and will soon enter the atmosphere. The meteor is above the top of a hill 22 miles away from where you are. You look upward 16 miles to see the meteor. Find the angle between the ground and your line of sight as you look towards the meteor. Draw the diagram, set up the appropriate trig ratio, and solve for θ. *(5 marks)*

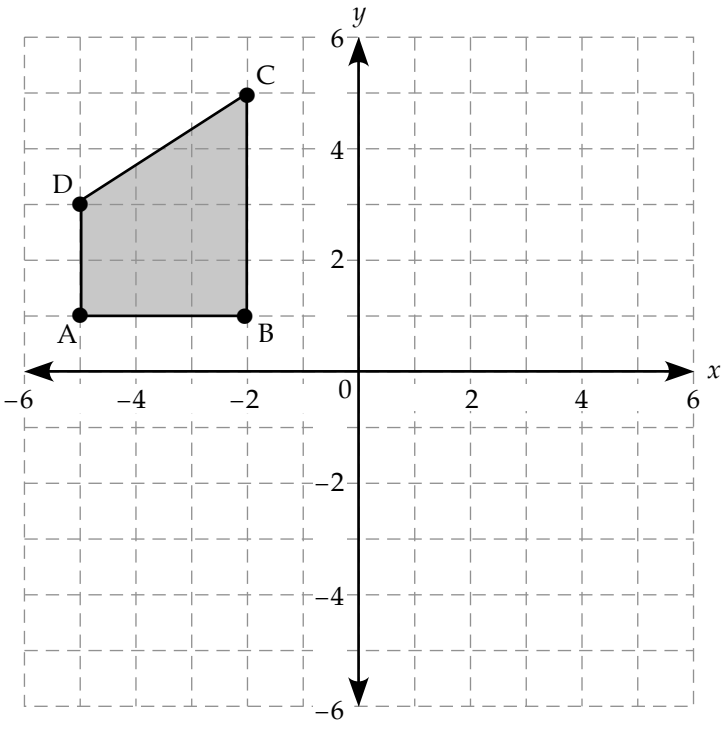
20. Draw the translation of the following shape, applying the rule [L2, D4], and label the points of the image. *(4 marks)*



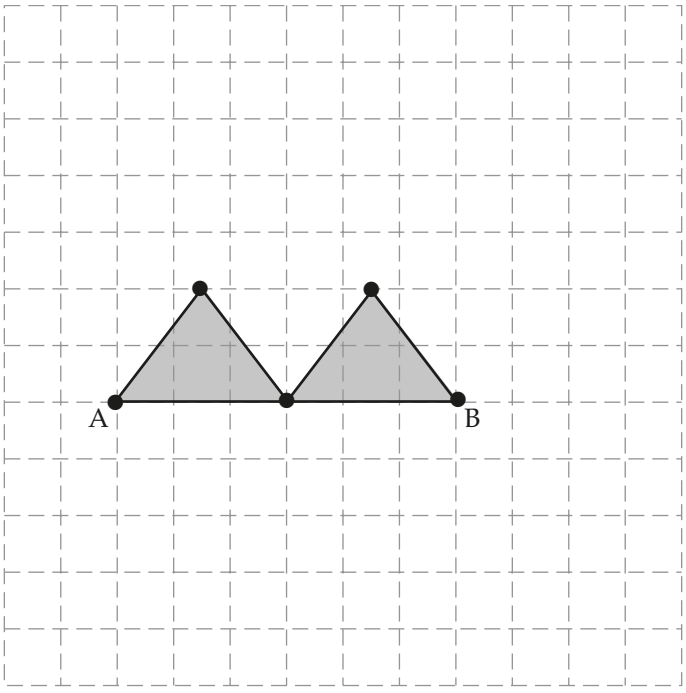
21. Identify the translation used. Write your answer in words. *(2 marks)*



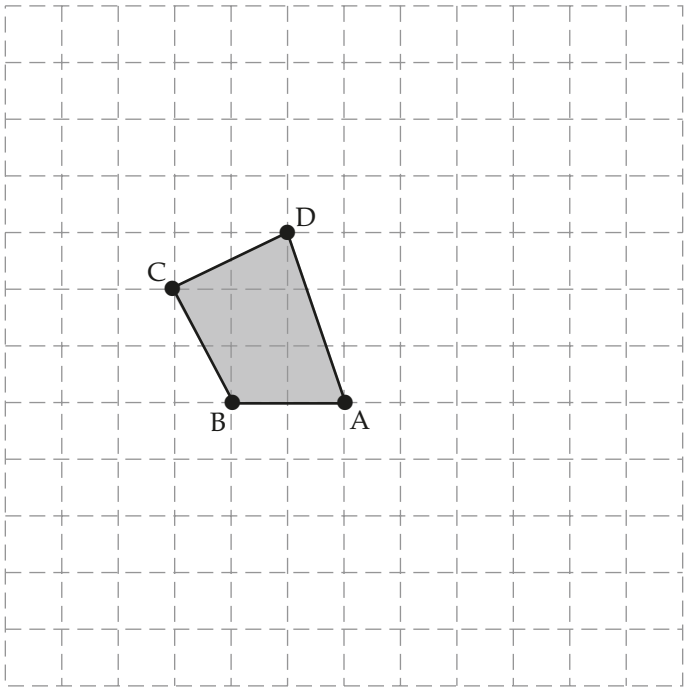
22. Draw the reflection of this shape over the x-axis, and label the points in the image. *(4 marks)*



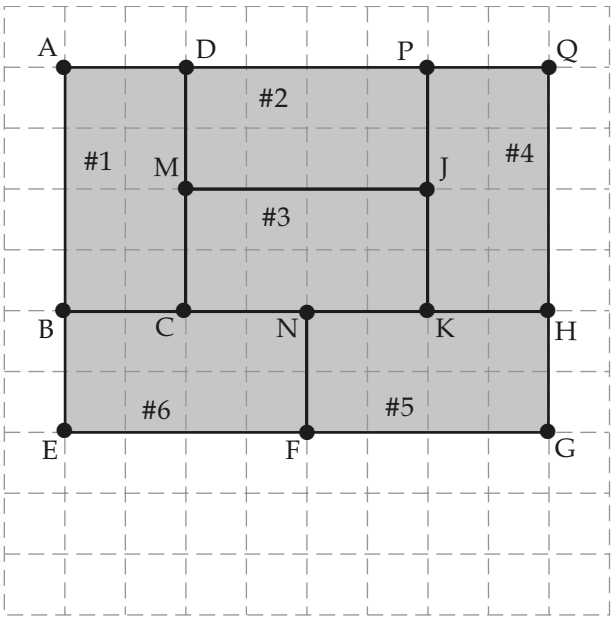
23. Rotate the shape 90° clockwise about point B, and draw the rotation. *(3 marks)*



24. Draw a dilation of this shape using a scale factor of 2, with point B being the centre of the dilation. *(4 marks)*



25. Identify a possible pattern of transformations used to create this shape, starting with rectangle ABCD. Each successive transformation is performed to the previous image. *(4 marks)*



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