P	Intermediate Mathemat rovincial Assessment 2	tics 🧏 🖮 2006 🕅 🏷	GOVERNMENT OF NEWFOUNDLAND AND LABRADOR Department of Education
Last Name:	First Na	ame:	MI:
Teacher:			
School Name:		School District:	

IMPORTANT

You will have to complete your name and school information in three places:

(1) On this sheet (above)

(2) On the bubble sheet

(3) On the cover of your Student Booklet

Please ensure the information in each of these places is completed correctly and clearly. Your bubble sheet will be placed inside this Section 1 Insert for mailing so pay particular attention that the bubble sheet and Insert information are correct.

Section 1: Non-Calculator Section

You will need a pencil, paper, and ruler for this section but you are <u>not permitted the use of a</u> <u>calculator</u>.

Questions, 1-10 require you to write, draw, or graph your responses in the space provided in this booklet. Do not use your bubble sheet for these questions. Section 1 should take about 20 minutes.

Your teacher will collect Section 1 when everyone is finished (or after about 30 minutes) and will then give you Section 2 (a larger work booklet containing the rest of the questions). You will need your bubble sheet for Section 2.

Section 1 Insert

1. Calculate: $(1\frac{2}{3} \div \frac{5}{6}) - \frac{3}{4}$.

2. Estimate $(8.42 \times 10^9) \div (2.15 \times 10^7)$.

3. Solve: 5x + 8 = 2x - 1.

4. Solve: -3(1-2x) = 15.

5. Using the axes provided, graph the line having slope $\frac{-2}{3}$ and *y*-intercept 4. y



6. Factor completely: $8a^3b^2 - 12a$.

7. Factor completely: $x^2 - 2x - 8$.

8. Calculate:
$$2 - \frac{2}{3} \times 12$$
.

9. Simplify:
$$\frac{-9x^2+6x^2}{3x}$$
.

10. Solve:
$$4x - 2 < x + 4$$
.

Intermediate Mathematics Provincial Assessment 2006



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR Department of Education

This Student Work Booklet contains the remaining questions for the Intermediate Mathematics Provincial Assessment 2006.

You will need a pencil, paper, and a ruler for these questions and you are also permitted the use of a four-function calculator (or a scientific calculator). No question requires the use of a calculator but you may use one if you choose. No graphing calculator is permitted.

Section 2: Calculators Permitted

Section 2 contains 40 multiple-choice questions (items 11-50) all having A,B,C,D choices. You are to shade the appropriate bubble (having the same number as the question) on the bubble sheet **using a lead pencil only**.

Do not shade more than one bubble or the question is scored as incorrect. Erase carefully with a good quality soft eraser if you need to change an answer.

Since the first question in this section is item 11, start with bubble 11. The last bubble you should shade in this assessment is 50 since the last multiple choice question you answer is item 50.

Please begin Section 2 now.

- 11. Which represents $\sqrt{360}$ in simplest radical form?
 - (A) 2√90
 - (B) 18.97
 - (C) 6√10
 - (D) 12√5

12. Which number line represents the inequality $\{x \mid -2 \le x < 1, x \in R\}$?



13. To which subset of the Real Numbers does $-\frac{4}{3}$ belong?



14. Squares with areas 36m² and 64m² are shown inside a larger square. What is the length of line segment XY in metres?



15. Which matrix represents the amount of stock on hand after the new stock was bought at the end of the week?



- 16. There are about 3.8 L of paint in a gallon. About how many litres are in $2\frac{1}{2}$ gallons?
 - (A) 1.3
 - (B) 1.5
 - (C) 6.3
 - (D) 9.5
- 17. Small sugar cubes have a mass of $\frac{1}{4}$ g. If there are $3\frac{1}{2}$ g of sugar in a container, how many sugar cubes must be added to increase the mass of the container to $5\frac{1}{4}$ g?
 - (A) $1\frac{3}{4}$
 - (B) 7
 - (C) $8\frac{3}{4}$
 - (D) 9
- 18. Calculate: $(7^3)^2 \times (7^4)$.
 - $\begin{array}{ll} (A) & 7^2 \\ (B) & 7^9 \\ (C) & 7^{10} \\ (D) & 7^{13} \end{array}$

19. Calculate:
$$\frac{2}{2^{-2}} \times \frac{3^2}{3^4}$$
.

- (A) $\frac{8}{9}$ (B) 1
- (C) 72
- (D) $\frac{729}{2}$

20. Which tile diagram correctly models the product: (x-3)(x+2)? (Note that grey tiles are positive and white are negative.)



- 21. Expand completely: $8x^2y(2x^2 y)$.
 - (A) $16x^2y 8x^2y^2$
 - (B) $16x^4 8y^2$
 - (C) $16x^4y 8x^2y$
 - (D) $16x^4y 8x^2y^2$

- 22. Which is the product of (x+3) and (3x-2)?
 - (A) $3x^2 6$ (B) $4x^2 - 6$ (C) $3x^2 + 7x - 6$ (D) $4x^2 + 7x - 6$
- 23. Evaluate $2x^2 + 3x 4y$ for x = 2 and y = -3.
 - (A) 2 (B) 10
 - (C) 26
 - (D) 34
- 24. A rectangular rug with dimensions 2x by (x + 1) is placed in a rectangular room with dimensions (4x + 3) by (3x + 4). What area of the floor is left uncovered?
 - (A) $10x^2 + 23x + 12$
 - (B) $10x^2 + 25x + 11$
 - (C) $14x^2 + 25x + 13$
 - (D) $14x^2 + 27x + 12$



- 25. The graph below shows the distance traveled by a vehicle over time. For which portion of the journey was the vehicle traveling fastest?
 - (A) A to B
 (B) B to C
 (C) C to D
 (D) D to E



- 26. Which type of relationship is represented by the table shown?
 - arithmetic (A)
 - (B) exponential
 - (C) linear
 - parabolic (D)

x	0	1	2	3	4
У	1	3	9	27	81

27. This graph represents profit per unit sold. What is the profit, in dollars, for sales of 500 units?



- The points (0, 0), (3, 1), and (6, 2), when graphed, lie on a line. What 28. is the equation of the line containing these points?
 - (A) $y = -\frac{1}{3}x + 1$
 - $(\mathsf{B}) \quad y = -\frac{1}{3}x$

 - (C) $y = \frac{1}{3}x$ (D) $y = \frac{1}{3}x + 1$



29. The table shows how the total number of diagonals a polygon has is related to the number of sides it has. If a polygon has 20 diagonals, how many sides would there be?

(A)	8
(B)	9
-	

- (C) 10
- (D) 11

sides	diagonals
3	0
4	2
5	5
6	9

- 30. To print rolls of tickets, a company charges \$25 as a set-up fee, and charges an additional \$5 per roll of tickets. How many rolls of tickets can be printed for \$200?
 - (A) 35
 - (B) 40
 - (C) 125
 - (D) 500
- 31. Solve for x: 2(3x-7)-2x = -5x+4.
 - (A) $\frac{1}{2}$
 - (B) ¹¹/₉
 - (C) 2
 - (D) 10
- 32. In $\triangle ABC$, AB = x, BC is three more than AB, and AC is twice BC. If the perimeter of $\triangle ABC$ is 93 cm, what is the length of AB in cm?
 - (A) 21
 - (B) 21.75
 - (C) 22.5
 - (D) 28

- 33. A cone and a cylinder have the same height and the same base radius. If volume of the cylinder is 81 cm³, what is the volume of the cone in cm³?
 - (A) 9
 - (B) 27
 - (C) 78
 - (D) 243
- 34. An official basketball has a radius of 12.5 cm and usually has a leather covering. Approximately how much leather, in cm², is required to cover 12 official basketballs?
 - (A) 164
 - (B) 682
 - (C) 23 562
 - (D) 98 175
- A carnival clown has 75 m³ of helium compressed in a tank. How many spherical balloons with a radius of 0.25 m can be filled with the tank?
 - (A) 286
 - (B) 1145
 - (C) 1527
 - (D) 4583



36. The triangles shown are congruent by which condition?



37. Given $\triangle ABE \sim \triangle DCE$ as shown, which statement is true?



38. Given the diagram as shown, which statement is true?

(A) (D)	$\overline{CT} \cong \overline{UT}$
(В) (С)	RT≅UT ∠C≅∠J
(D)	$\angle R \cong \angle U$



39. Given the diagram as shown, determine the length of \overline{AB} .

(A) (B) (C)	3.25 10.5 13	F
(C)	13	6.5
(D)	20	D 4 E

40. Chris sights a rock across a river and walks along one of the river banks making the measurements shown in the diagram. How many metres wide is the river?



- 41. For which transformation must orientation be reversed?
 - (A) dilatation
 - (B) reflection
 - (C) rotation
 - (D) translation
- 42. Triangle ABC with vertices A(4, 2), B(1, 3), and C(3, 1) is reflected in the *y*-axis. Which mapping describes the transformation?

(A)	(<i>X</i> ,	y)	\rightarrow	(-y	′, x)

- (B) $(x, y) \rightarrow (-x, y)$
- (C) $(x, y) \rightarrow (x, -y)$
- (D) $(x, y) \rightarrow (y, -x)$



43. The point (-2, 3) undergoes a reflection in the *x*-axis followed by a 180° CCW rotation about the origin. What will be the final coordinates of the point? (A grid is provided for your assistance.)



- (C) (2,3)
- (D) (3, 2)



44. Which rule maps ABCD to A'B'C'D'?

- (A) $(x, y) \rightarrow (x+2, y+4)$
- (B) $(x, y) \rightarrow (2x, y+4)$
- (C) $(x, y) \rightarrow (2x, 2y+8)$
- (D) $(x, y) \rightarrow (2x+8, 2y)$



45. The table shows the heights of several seedlings after various growing times. Which graph should be used to determine whether there is a relationship between time and seedling height?

Time(days)	1	3	2	3	3	2	1	2
Height(mm)	6	13	11	14	15	10	4	7

- (A) box and whisker plot
- (B) circle graph
- (C) histogram
- (D) scatterplot

46. On which plot does the line/curve drawn best fit the data?



47 Which scatterplot shows the strongest negative correlation?





48. Which equation best represents the line of best fit that would apply to this scatterplot? 7



- In which situation is the second event dependent on the first event? 49.
 - driving to school with Mom; then winning the lottery (A)
 - (B) head on last coin toss; head on next coin toss
 - 6 on last roll of a die; 6 on next roll of a die (C)
 - waking at 10am; then being late for school (D)
- A bag contains 2 green, 1 yellow, and 4 red jelly beans. What is the 50. probability of picking two red jelly beans in a row from the bag if the first is not replaced before the second is picked?
 - <u>12</u> 42 (A)
 - <u>16</u> 42 (B)

 - <u>12</u> 49 (C)
 - <u>16</u> 49 (D)

End of the Assessment