Intermediate Mathematics
Provincial Assessment 2008

This Student Work Booklet contains the remaining questions for the Intermediate Mathematics Provincial Assessment 2008.

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

Section 3: **Calculators Permitted**

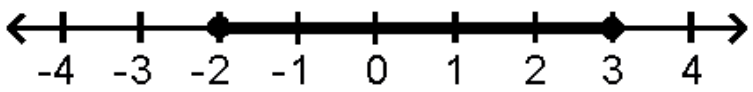
Section 3 contains 31 multiple-choice questions (items 12-42) all having A,B,C,D choices. You are to shade the appropriate bubble (having the same number as the question) on the bubble sheet **using a pencil only**.

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

Since the first question in this section is item 12, start with bubble 12. The last bubble you should shade in this assessment is 42 since the last multiple choice question you answer is item 42.

Please begin Section 3 now.

12. Which set notation represents this graph?



(A) $x \mid -2 \leq x \leq 3, x \in R$

(B) $x \mid -2 < x < 3, x \in R$

(C) $x \mid -2 \leq x \leq 3, x \in I$

(D) $x \mid -2 < x < 3, x \in I$

13. Which statement is true?

(A) If a number is an integer then it is also rational.

(B) All integers are whole numbers.

(C) The number 3π is rational.

(D) There is a number that is both rational and irrational.

14. Which number is between 4 and 4.5?

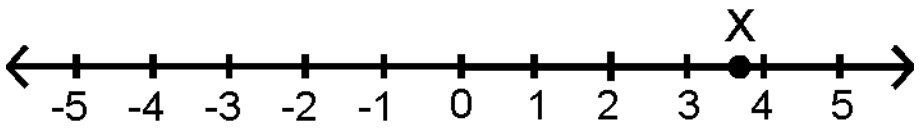
(A) $-\sqrt{20}$

(B) $\sqrt{15}$

(C) $\frac{17}{4}$

(D) $4\frac{2}{3}$

15. Which radical could be represented by point X on the number line?



(A) $\sqrt{10}$

(B) $\sqrt{15}$

(C) $\sqrt{17}$

(D) $\sqrt{22}$

16. Which matrix represents the amount of stock on hand after a new order was received on July 31st?

	Stock on Hand July 1		**July Sales**		**Stock received**	
	Large	Small	Large	Small	Large	Small
Ice cream	21	15	11	14	15	27
Frozen yogurt	18	27	3	22	8	19

(A) $\begin{bmatrix} 10 & 1 \\ 15 & 5 \end{bmatrix}$

(B) $\begin{bmatrix} 17 & 2 \\ 13 & 30 \end{bmatrix}$

(C) $\begin{bmatrix} 25 & 28 \\ 23 & 24 \end{bmatrix}$

(D) $\begin{bmatrix} 47 & 56 \\ 29 & 68 \end{bmatrix}$

17. There are $2\frac{3}{4}$ cups of flour in a recipe for one dozen oatmeal cookies. How many cups of flour are needed for $6\frac{1}{2}$ dozen cookies?

(A) $\frac{11}{26}$
(B) $4\frac{1}{2}$
(C) $12\frac{3}{8}$
(D) $17\frac{7}{8}$

18. Calculate: $7^{4^{5}} \times 7^{9}$

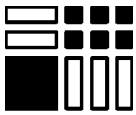
(A) 7^{1}
(B) 7^{18}
(C) 7^{29}
(D) 7^{81}

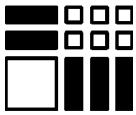
19. Simplify: $\dfrac{a^{6^{a^{4^{0}}}}}{a^{-4}}$

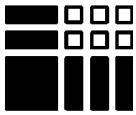
(A) a^{2}
(B) a^{6}
(C) a^{10}
(D) a^{14}

20. Which diagram represents the product of $x-3$ $x-2$?

(Note that shaded tiles are designated as positive and clear tiles as negative.)

(A) 

(B) 

(C) 

(D) 

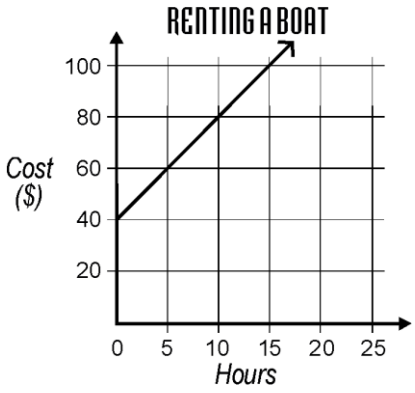
21. Find the quotient when $6x^5-9x^4+12x^2$ is divided by $-3x$.

(A) $-2x^4+3x^3-4x$
(B) $-2x^4-9x^4+12x^2$
(C) $2x^4-3x^3+4x$
(D) $6x^5+3x^3+12x^2$

22. Expand: $-5x$ x^2-4x-3

(A) $-5x^3-20x-15x$
(B) $-5x^2-4x-3$
(C) $-5x^2+20x+15$
(D) $-5x^3+20x^2+15x$

23. The graph shown represents the cost of renting a boat over time. What is the hourly charge to rent the boat?



(A) $ 1.00
(B) $ 4.00
(C) $ 20.00
(D) $ 40.00

24. Simplify.

$$\frac{4x^3 + 8x}{2x}$$

(A) $2x + 4$
(B) $2x^2 + 4$
(C) $2x^2 + 4x$
(D) $2x^2 + 8x$

25. If the pattern continues, how many line segments would be used if there are 15 dots in the diagram?

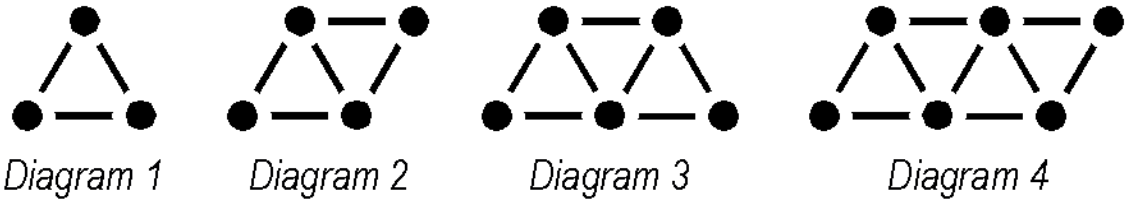


Diagram 1 *Diagram 2* *Diagram 3* *Diagram 4*

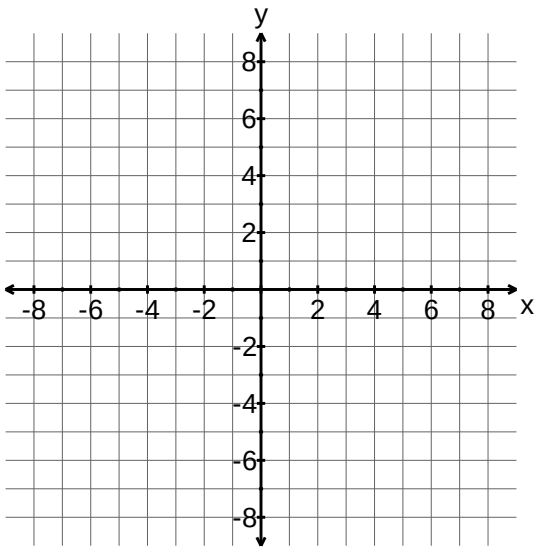
(A) 9
(B) 15
(C) 27
(D) 30

26. What type of relation is represented by the data table?

X	***Y***
1	8
2	4
3	2
4	1
5	$\frac{1}{2}$

(A) linear
(B) parabolic
(C) exponential
(D) none of these

27. What is the slope of the line passing through the points (-4, 3) and (5, -3)?



(A) $\frac{-3}{2}$

(B) $\frac{-2}{3}$

(C) $\frac{2}{3}$

(D) $\frac{3}{2}$

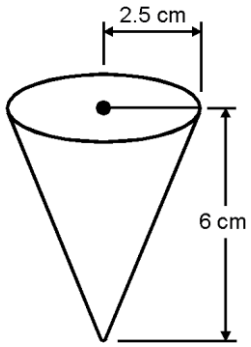
28. The perimeter of a rectangle is 72 m. The length is 4 m more than three times the width. What is the length of the rectangle?

(A) 8
(B) 17
(C) 28
(D) 55

29. A square prism has a volume of 660 cm^3. What would be the volume of a square pyramid that has the same base area and height as a square prism?

(A) 165 cm^3
(B) 220 cm^3
(C) 330 cm^3
(D) 660 cm^3

30. The plastic mold shown is used to make frozen juice treats. How many millilitres of juice is used to make each treat?



(A) 39
(B) 118
(C) 156
(D) 390

31. Calculate: $0.75 - \left(\frac{1}{4} \div \frac{3}{8} \right)$

(A) $\frac{1}{12}$

(B) $\frac{1}{2}$

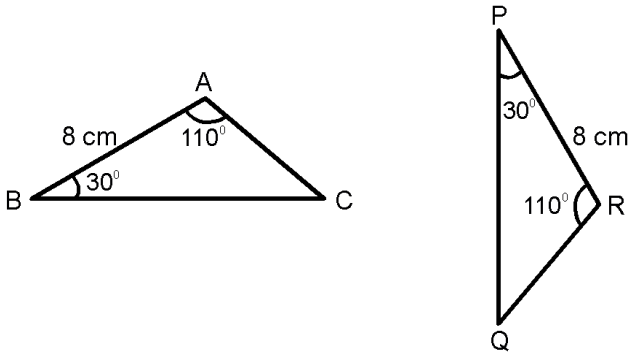
(C) $\frac{21}{32}$

(D) $\frac{4}{3}$

32. For which transformation is orientation not maintained?

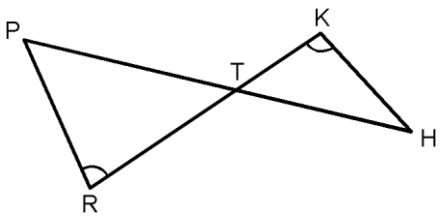
(A) dilatation
(B) reflection
(C) rotation
(D) translation

33. Which condition could be used to show that the triangles shown are congruent?



(A) AAA
(B) ASA
(C) SAS
(D) SSS

34. Given the diagram, which statement must be correct?



(A) $\frac{PR}{KH} = \frac{PT}{KT}$

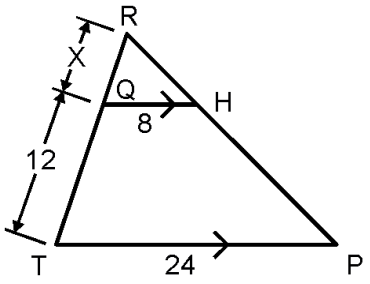
(B) $\frac{RT}{HT} = \frac{PT}{KH}$

(C) $\frac{PT}{HT} = \frac{RT}{KT}$

(D) $\frac{PR}{KH} = \frac{TH}{TR}$

35. What is the value of X in the diagram below?

(A) 4
(B) 6
(C) 8
(D) 12

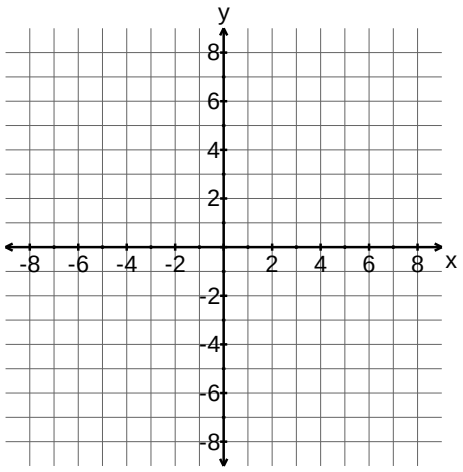


36. Two triangles are similar and congruent. What are the ratios of their corresponding sides?

(A) 1 : 1
(B) 1 : 2
(C) 2 : 1
(D) 1 : 3

37. A point (-1, 4) is reflected in the y-axis and then rotated 90° clockwise about the origin. What will be the final coordinates of the point?

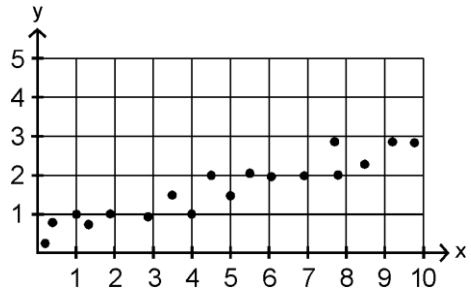
(A) (-4, 1)
(B) (-1, -4)
(C) (1, 4)
(D) (4, -1)



38. The dilatation $x, y \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$ is applied to a figure and is followed by the translation $x, y \rightarrow x+4, y-3$. P $10, -4$ is a vertex on the original figure. What are the coordinates of P'' of the image under these transformations?

(A) $9, -5$
(B) $9, -1$
(C) $7, 3.5$
(D) $14, -7$

39. What is a good estimate of the slope of the line of best fit for the following data?



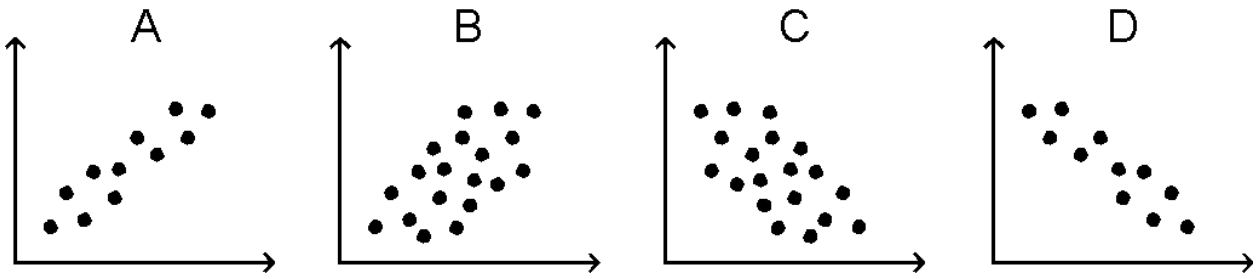
(A) -3

(B) $\frac{-1}{3}$

(C) $\frac{1}{3}$

(D) 3

40. Which scatterplot has the weakest negative relationship?



(A) A
(B) B
(C) C
(D) D

41. A family is expecting triplets. Which of the following can be used to determine the probability of having three girls?

(A) flip 3 coins
(B) roll 3 dice
(C) spin a 3 coloured spinner
(D) toss 3 paper cups

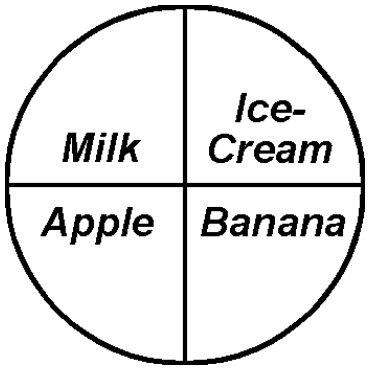
42. A student was asked to spin the spinner two times to win a prize on each spin. What is the probability of winning two milk?

(A) $\frac{1}{16}$

(B) $\frac{1}{8}$

(C) $\frac{1}{4}$

(D) $\frac{1}{2}$



End of the Assessment