

Math 10 Provincial Exam Practice B

Name: Key

1. A B C D
2. A B C D
3. A B C D
4. A B C D
5. A B C D
6. A B C D
7. A B C D
8. A B C D
9. A B C D
10. A B C D
11. A B C D
12. A B C D

13. A B C D
14. A B C D
15. A B C D
16. A B C D
17. A B C D
18. A B C D
19. A B C D
20. A B C D
21. A B C D
22. A B C D
23. A B C D
24. A B C D
25. A B C D
26. A B C D
27. A B C D
28. A B C D
29. A B C D
30. A B C D

31. A B C D
32. A B C D
33. A B C D
34. A B C D
35. A B C D
36. A B C D
37. A B C D
38. A B C D
39. A B C D
40. A B C D
41. A B C D
42. A B C D

43. A B C D
44. A B C D
45. A B C D
46. A B C D
47. A B C D
48. A B C D
49. A B C D
50. A B C D
51. A B C D
52. A B C D
53. A B C D
54. A B C D

55. 0.4
56. -16
57. 960
58. 625
59. 339
60. 45

PART A: MULTIPLE-CHOICE QUESTIONS
(calculator not permitted)

Value: 12 marks

worked out key

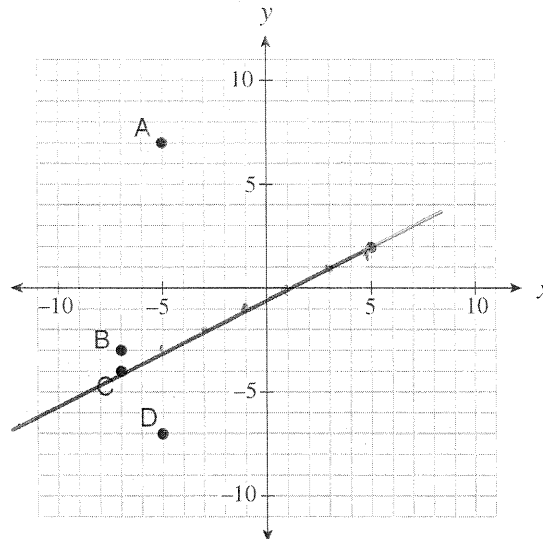
Suggested Time: 30 minutes
Allowable Time: 40 minutes

INSTRUCTIONS: No calculator may be used for this part of the examination. For each question, select the **best** answer and record your choice on the **blue Answer Sheet** provided. Using an HB pencil, completely fill in the bubble that has the letter corresponding to your answer. You have a **maximum of 40 minutes** to work on this section.

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"/>

Use the following graph to answer question 1.

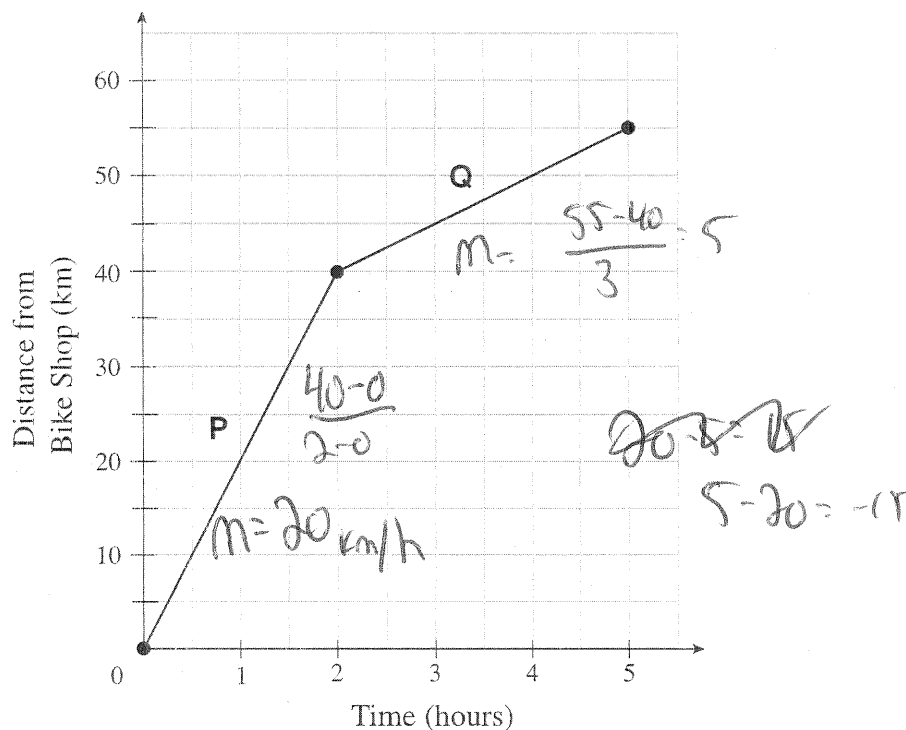


1. The line $y - 2 = \frac{1}{2}(x - 5)$ passes through which point on the graph?

- A. A
- B. B
- C. C
- D. D

point is (5, 2)
slope = 1/2

2. The graph below models a bicycle's distance from a bike shop over time.



Calculate the change in the speed of the bike from segment P to segment Q.

- A. decreased by 15 km/h
- B. decreased by 5 km/h
- C. increased by 15 km/h
- D. increased by 11 km/h

3. Solve the following system of equations:

$$\begin{aligned}
 4x + 2y &= 8 \\
 -3x + y &= -1
 \end{aligned}$$

Handwritten work:

$$y = 3x - 1$$

$$4x + 2(3x - 1) = 8$$

$$4x + 6x - 2 = 8$$

$$10x = 10$$

$$x = 1$$

$$y = 2$$

Final answer: $(1, 2)$

- A. (-3, 10)
- B. (-1, 6)
- C. (1, 2)
- D. (3, 2)

4. How many solutions does this system of equations have?

$$y = \underline{3x + 7}$$

$$y = \underline{3x - 4}$$

m is the same so
lines are ~~pt~~ and different
y-intercept.
NO soln.

- A. no solution
- B. one solution
- C. an infinite number of solutions
- D. cannot be determined without solving

5. What is the least common multiple of 18 and 24?

- ~~A.~~ $2 \times 3 = 6$ too small
- ~~B.~~ $2^2 \times 3^3 = 4 \times 27 = 108$ doesn't work for 24
- C. $2^3 \times 3^2 = 72$ ✓
- D. $2^4 \times 3^3 = 432$

6. What is the greatest common factor of 12, 24, 30, 72?

- A. 360
- B. 12
- C. 6
- D. 2

not 12
6 ✓ 6 ✓ 6 ✓ 6 ✓
12: 1, 2, 3, 4, 6, 12

7. Express $2\sqrt{5}$ as an entire radical.

- ~~A.~~ $\sqrt{10} = 3.16$
 - B. $\sqrt{20} = 4.47$
 - ~~C.~~ $\sqrt{50} = 7.07$
 - ~~D.~~ $\sqrt{100} = 10$
- $\sqrt{2 \cdot 2 \cdot 5} = \sqrt{20}$

8. Order the numbers from the smallest value to the largest value.

I.	$-3\sqrt{2}$	$= -\sqrt{18}$	②
II.	$\sqrt{9}$	$= 3$	③
III.	$2\sqrt{3}$	$= \sqrt{12}$	(bigger than 9) ④
IV.	$-2\sqrt{7}$	$= -\sqrt{28}$	①

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

9. Simplify: $(2x^3)^3 \cdot 3x^4$

- A. $24x^{36}$
 B. $24x^{13}$
 C. $18x^{36}$
 D. $6x^{13}$

$$2^3 x^9 \cdot 3x^4$$

$$8x^9 \cdot 3x^4$$

$$24x^{13}$$

10. A road sign says to turn right in 1000 feet. Approximately how far is this distance in kilometres?

- A. 0.3 km
 B. 0.6 km
 C. 1 km
 D. 1.5 km

$$1000 \text{ ft} \times \frac{1 \text{ mtr}}{5280 \text{ ft}} \times \frac{1.609 \text{ km}}{1 \text{ mtr}}$$

$$= 0.3047$$

11. Which of the following calculations converts 4 yards into centimetres?

A. $4 \text{ yd} \times \frac{2.54 \text{ cm}}{1 \text{ in}}$

need units to cancel

B. $4 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{2.54 \text{ cm}}{1 \text{ ft}}$

not enough

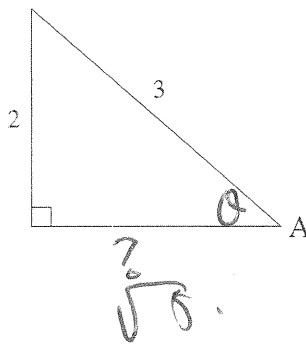
$4 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}}$

C. $4 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}}$

D. $4 \text{ yd} \times \frac{1 \text{ ft}}{3 \text{ yd}} \times \frac{1 \text{ in}}{12 \text{ ft}} \times \frac{1 \text{ cm}}{2.54 \text{ in}}$

upside down.

12. Determine the ratio of $\cos A$.



$\cos = \frac{\text{adj}}{\text{hyp}}$

*$C^2 = A^2 + B^2$
 $3^2 - 2^2 = B^2$
 $9 - 4 = 5$*

A. $\cos A = \frac{2}{3}$

B. $\cos A = \frac{\sqrt{5}}{3}$

C. $\cos A = \frac{\sqrt{13}}{3}$

D. $\cos A = \frac{3}{\sqrt{5}}$

This is the end of Part A (calculator not permitted).

If there is some time left, you have two options:

- i) Make sure you have answered all the questions. You will not be able to go back to this section at the end of 40 minutes.
- ii) You may proceed to the rest of the examination without the use of a calculator; there are many questions that do not require a calculator. Make sure you flag any questions you skip to remember to go back to them later.

Do not access your calculator until directed by the supervisor. At the end of the 40 minutes, the supervisor will give you permission to access your calculator.

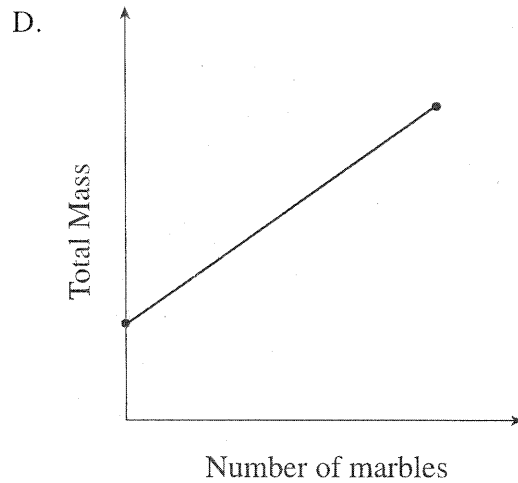
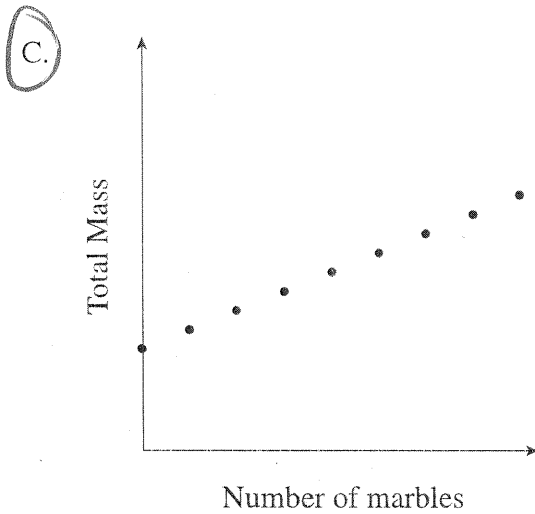
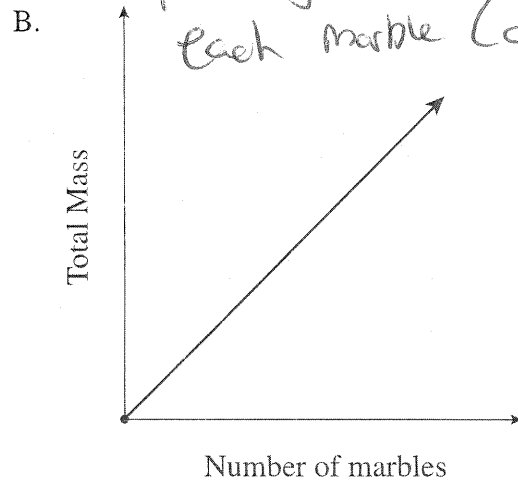
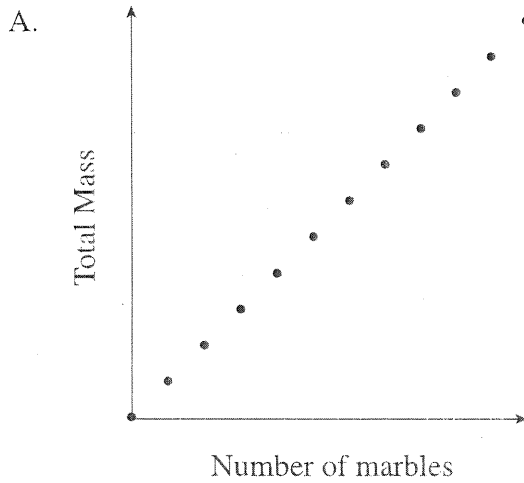
PART B: MULTIPLE-CHOICE QUESTIONS
(calculator permitted)

Value: 42 marks

Suggested Time: 75 minutes

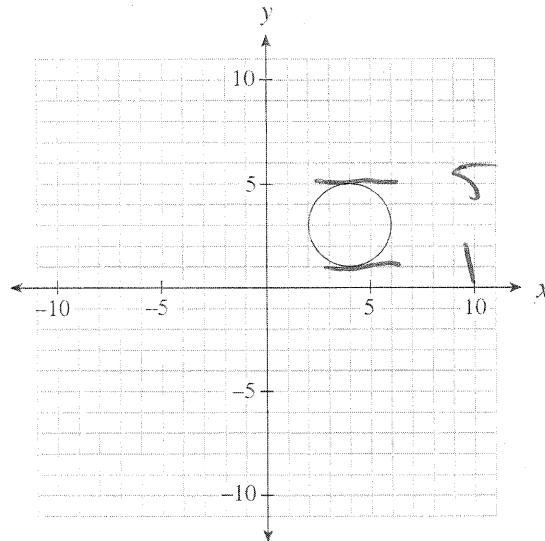
INSTRUCTIONS: For each question, select the **best** answer and record your choice on the **white Answer Sheet** provided. Using an HB pencil, completely fill in the bubble that has the letter corresponding to your answer.

13. Marbles are placed in a jar one at a time. Which graph below best represents the total mass of the jar and marbles as the marbles are added?



14. What is the range of the graph below?

y values



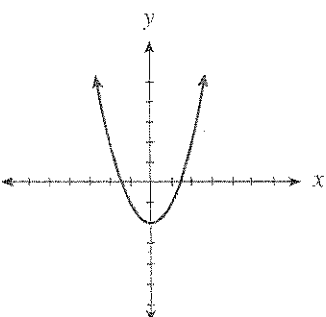
I.	All x values between 2 and 6 inclusive.
II.	$(2, 6)$
III.	$[1, 5]$ ✓
IV.	$1 \leq y \leq 5$ ✓

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

1 in - 1 out

15. Which of the following relations are also functions?

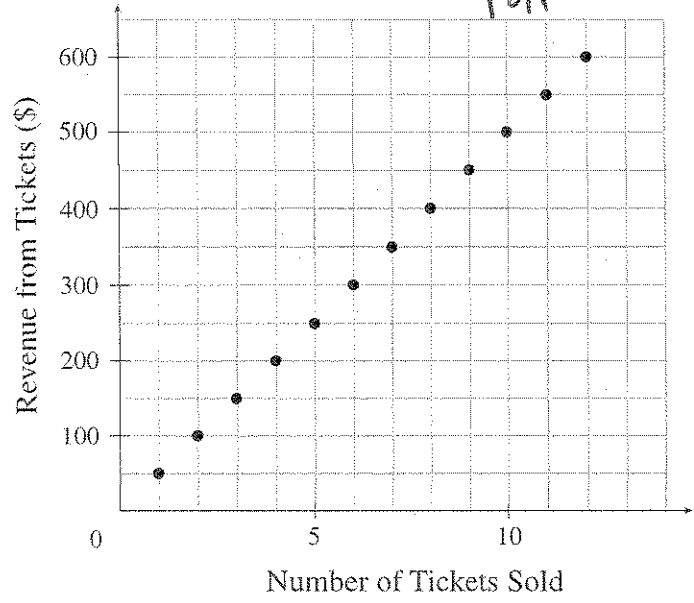
4 repeats

I.	$\{(0, 2), (1, 4), (3, 6), (4, 5), (4, 3), (7, -8)\}$ <i>no</i>
II.	$y = 2x + 5$ ✓
III.	The output is 6 more than half the input. ✓
IV.	 <p>passes V.L.T ✓</p>

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

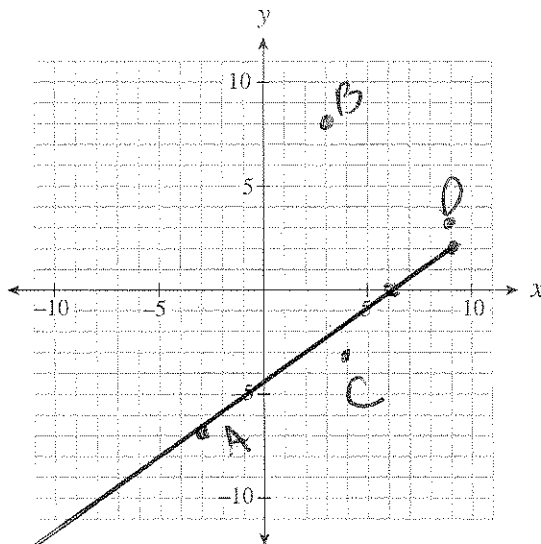
16. What does the slope represent in the graph below?

rise / run



- A. price per ticket
 - B. profit from tickets
 - C. revenue from tickets
 - D. number of tickets sold
- can't be b/c other factor influence profit.*

The grid below may be used for rough work to answer question 17.



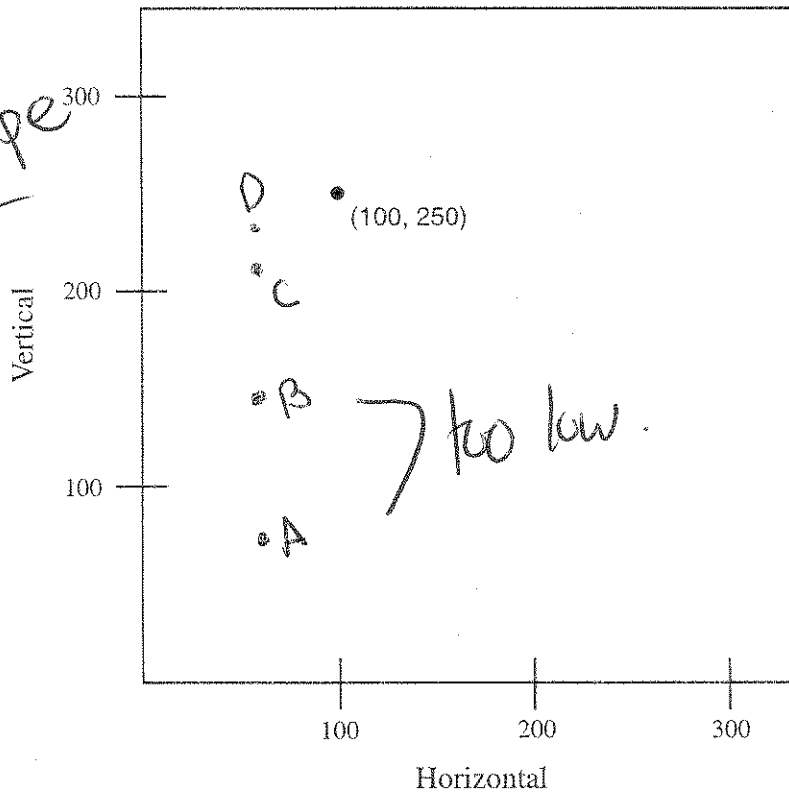
17. A line has a slope of $\frac{2}{3}$ and passes through the point $(6, 0)$. Which of the following points must also be on the line?

- A. $(-3, -6)$
- B. $(3, 8)$
- C. $(4, -3)$
- D. $(9, 3)$

18. A video game programmer needs to simulate a shot on a gaming screen. The shot needs to have a slope of $\frac{6}{5}$ to a target at (100, 250). If the shooter has a horizontal position of 65, what would be the shooter's position on the screen?

~~A~~ Tough Question.
Video Screen

Shot
Positive Slope
Small slope



x	y
65	208
70	214
75	220
80	226
100	250

- A. (65, 78)
- B. (65, 125)
- C. (65, 208)
- D. (65, 220.8)

a) or to go for $(100 - 65)$ need $\frac{(100-65)}{5}$
 $7 \times 6 = 42$ $42 + 208 = 250$ $\frac{100-65}{5} = 7$ Slopes

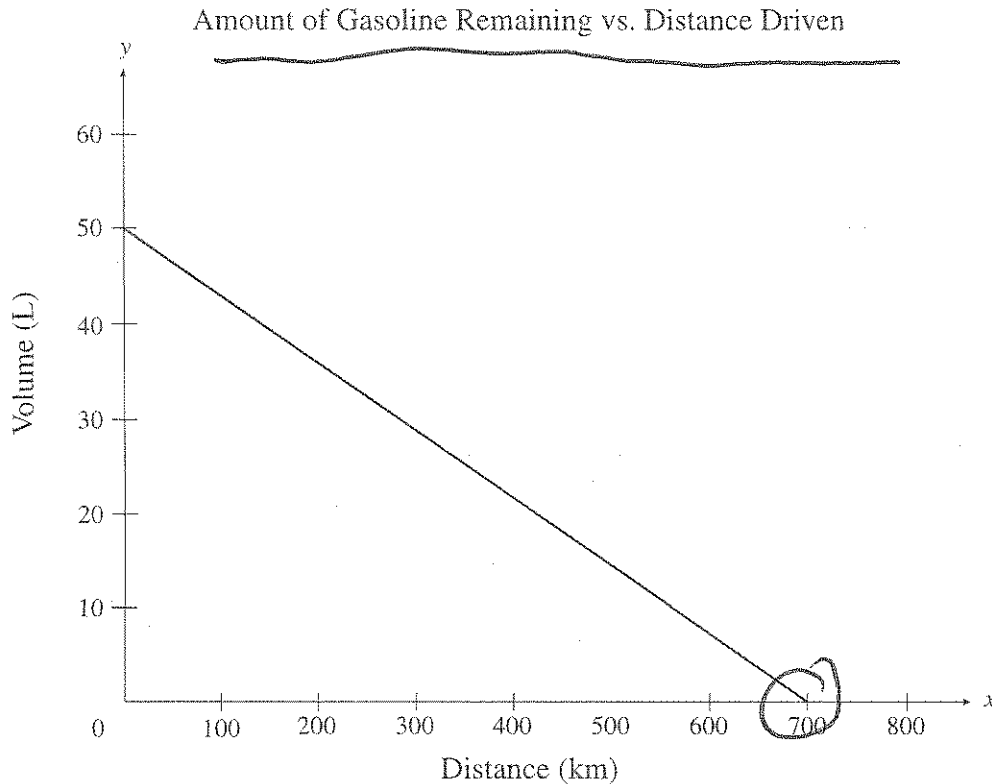
19. Which of the following scenarios is not linear?

- A. the height of a football thrown over time
- B. the total weight of a jar of pennies as more pennies are added
- C. the distance travelled by a car moving at a constant speed over time
- D. the pay of a truck driver who earns \$2500 a month, plus \$0.50 for every kilometre he drives

Stay Straight line

↙

Use the following graph to answer question 20.



20. The graph above shows the relationship between the amount of gasoline remaining in a 50 L tank and the distance driven for a certain car.

What does the x -intercept represent in this situation?

- A. fuel capacity of the gasoline tank (y)
 B. total distance travelled during a long trip (could have re-fueled)
 C. total distance driven until the car is out of gas
 D. number of kilometres driven per litre of gasoline (slope)

Whole #3.

21. Damien has a list of 37 potential customers for his house-painting business. In order to get a business grant, he must graph his income versus the number of customers. Determine the domain of the graph.

- A. $\{0, 1, 2, 3, \dots\}$ (x) limited to 37.
 B. $\{0, 1, 2, 3, \dots, 37\}$
 C. all real numbers
 D. all real numbers between 0 and 37 (no 1/2 people.)

22. Rewrite $y = \frac{x}{5} - 6$ in general form.

- ~~A~~ $\frac{x}{5} - y - 6 = 0$ Fractions
~~B~~ $x + 5y - 6 = 0$ Forget $\times 6$
 C $x - 5y - 30 = 0$
~~D~~ $5x - 5y - 30 = 0$
 Not sure @ Start

cf
 $y = \frac{x}{5} - 6$
 $5y = x - 30$
 $x - 5y - 30 = 0$
 + and like

23. Given the equation $Ax + By + C = 0$, which of the following conditions must be true for the graph of the line to have a positive slope and a positive y-intercept?

- ~~A~~ $A > 0, B > 0, C > 0$
 B $A > 0, B < 0, C > 0$
~~C~~ $A > 0, B > 0, C < 0$
~~D~~ $A > 0, B < 0, C < 0$

gen Ben $m = \frac{opp A}{B}$ so A must B +
 so opp 0
 $A > 0, B < 0, C > 0$
 y inter $\frac{opp C}{B}$ ← must be + so opp -

24. Which of the following lines have a negative slope?

I.	$y + 3 = 0$
II.	$2x + y = 6$
III.	$(y + 2) = -4(x - 5)$

$y = -3$ no slope (0).

$J = -2x + 6$ ✓

$m = -4$

- ~~A~~ II only
~~B~~ III only
~~C~~ I and III only
 D II and III only

25. Which of the following statements are true for $2x + 3y = 6$?

$$\frac{3y}{3} = \frac{-2x + 6}{3}$$

I.	The y-intercept is -2. X
II.	The line is parallel to $y = 2x$. no <i>It must be same.</i>
III.	The slope-intercept form of the line is $y = \frac{2}{3}x + 2$. X <i>no</i>
IV.	The range is all real numbers.

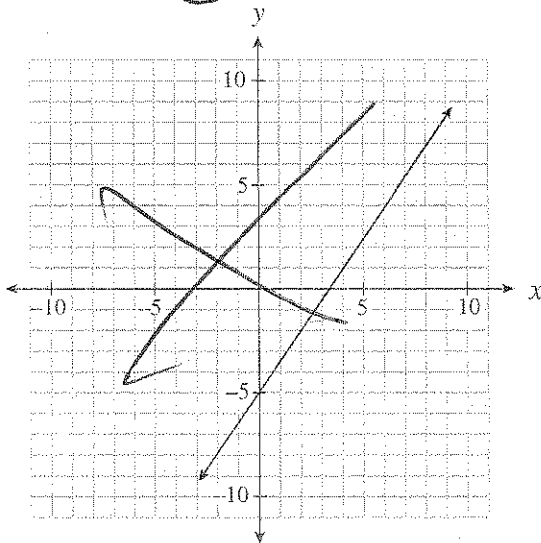
$$y = \frac{2}{3}x + 2$$

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

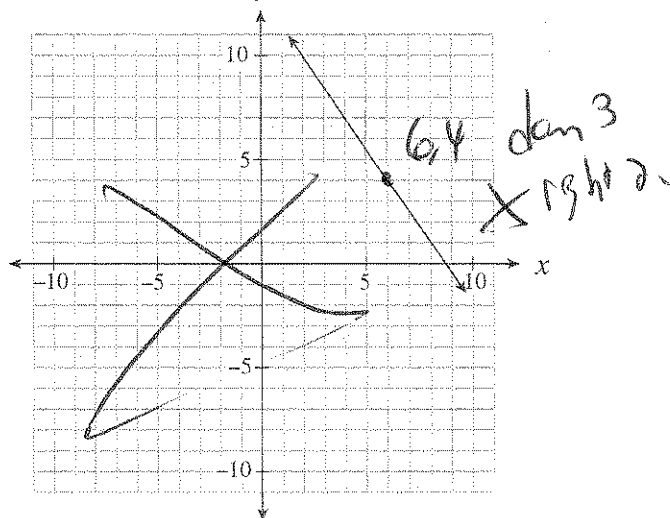
26. Which of the following graphs represents a line that passes through (6, 4) and is

perpendicular to $y = -\frac{2}{3}x$? *negative*

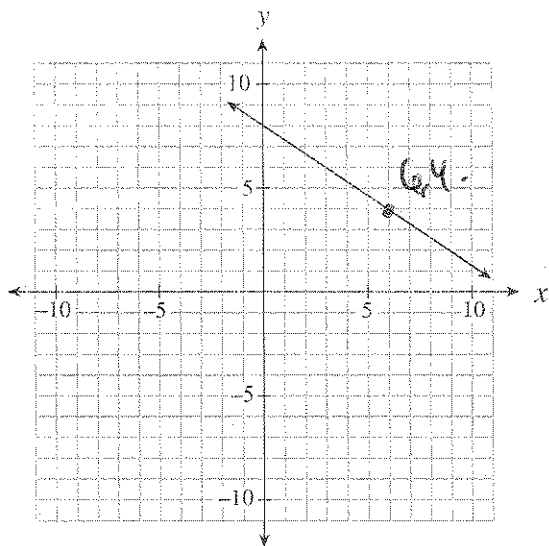
A.



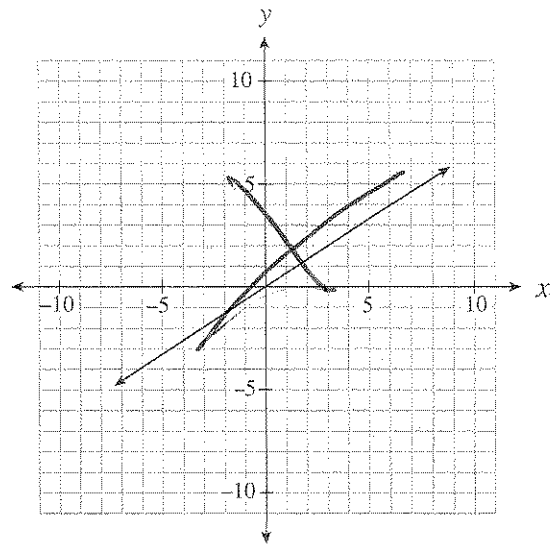
B.



C.



D.



27. Determine the slope-intercept form of the line that passes through the point $(-4, 3)$ and is parallel to the line segment that joins $A(-1, -5)$ and $B(-3, 1)$.

A. $y = -3x - 9$

B. $y = -3x + 5$

C. $y = -3x + 15$

D. $y = 3x + 15$ *not -3*

$$\frac{1 - (-5)}{-3 - (-1)} = \frac{6}{-2} = -3$$

$$y = mx + b$$

$$3 = -4(-3) + b$$

$$3 = 12 + b$$

$$b = -9$$

28. A hot-dog stand owner makes a profit of \$100 ^{point} when he sells 90 hot dogs a day. He has a loss of \$30 when he sells 25 hot dogs a day. Which linear relation represents his profit?

A. $y = 0.5x + 55$ *m ≠ 2*

B. $y = 1.08x + 3.08$ *m ≠ 2*

C. $y = 1.11x$ *m ≠ 2*

D. $y = 2x - 80$

$$(90, 100)$$

$$(25, -30)$$

↑
loss

$$\frac{-30 - 100}{25 - 90} = \frac{-130}{-65}$$

$$m = 2$$

29. Which ordered pair represents $f(3) = -5$?

A. $(-5, 3)$

B. $(-3, 5)$

C. $(3, -5)$

D. $(5, -3)$

$$(3, -5)$$

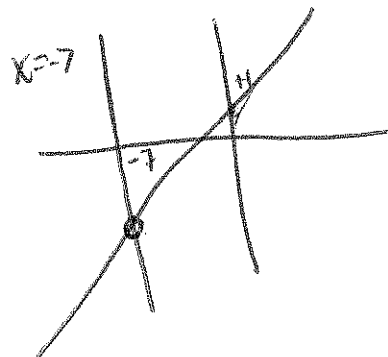
30. In which quadrant do the graphs of $x = -7$ and $y = 2x + 1$ intersect?

A. Quadrant I

B. Quadrant II

C. Quadrant III

D. Quadrant IV



31. Joey bought 8 books. Some books cost \$12 each the rest cost \$18 each. He spent a total of \$108. Which of the following systems of linear equations could represent the given situation?

A. $x + y = 8$
 $12x + 18y = 108$

B. $x + y = 108$
 $12x + 18y = 8$

C. $x + 12y = 8$
 $x + 18y = 108$

D. $12x + y = 8$
 $x + 18y = 108$

$x + y = 8 \rightarrow$ Books
 $12x + 18y = 108 \rightarrow$ Cost.

32. Kim invested a total of \$1500 between two bonds. One bond earned 8% per annum and the other bond earned 10% per annum. In one year, Kim earned \$132 on her investments. How much did she invest in the bond that earned 10%?

- A. \$600
 B. \$750
 C. \$900
 D. \$1000

$x + y = 1500$ $x = 1500 - y$
 $0.08x + 0.1y = 132$ $0.08(1500 - y) + 0.1y = 132$
 $120 - 0.08y + 0.1y = 132$
 $-120 \quad \quad \quad -120$

Picking x as 1st
 Solves for y .

33. Which one of the following sets of numbers contains only rational numbers?

A. $\{-\frac{3}{4}, 7.1, \sqrt{16}\}$ ✓

B. $\{\frac{1}{2}, -6, \frac{\sqrt{5}}{2}\}$ ✗ $\sqrt{5}$ can't be

C. $\{-3, 4.\overline{23}, 4.121314\dots\}$

D. $\{\sqrt{10}, 3\sqrt{9}, \pi\}$ ✗
 ↑ no repetition
 A
 no fraction

written as
 fraction

\downarrow
 $\frac{0.02y}{0.02} = \frac{12}{0.02}$
 $y = 600$

34. Simplify: $\sqrt[3]{1080}$ = 10.26

- ~~A~~ $2\sqrt[3]{135}$ ← still reducible.
- ~~B~~ $3\sqrt[3]{40}$ ← still reducible.
- C $6\sqrt[3]{5}$
- ~~D~~ $6\sqrt[3]{30}$ ← still reducible.
= 18.6

So pick lowest radical.

~~all~~

35. Simplify: $(3a^2)^3(4a^3)^0$ $3^3 a^6$ $27a^6$

- ~~A~~ $9a^6$ 3×3 not 3^3
- B $27a^6$
- ~~C~~ $36a^8$
- ~~D~~ $108a^9$ → didn't get rid of last term

36. Which expression is equivalent to $(-c^2)^{-\frac{1}{3}}$?

- A. $\frac{1}{\sqrt[3]{-c^2}}$
- B. $\frac{1}{\sqrt[3]{c^2}}$
- C. $\frac{1}{\sqrt{-c^3}}$
- D. $\sqrt[3]{c^2}$

↑ no - exp.

$-c^{2(-\frac{1}{3})} = -c^{-\frac{2}{3}}$ ← exp

← index

$= \frac{1}{\sqrt[3]{-c^2}}$

37. Simplify: $\sqrt{x^3} \div \sqrt[3]{x^4}$

- A. $\sqrt[6]{x}$
- B. $\sqrt[8]{x^9}$
- C. $\sqrt[9]{x^8}$
- D. $\sqrt[12]{x}$

new - w/rules

$$\frac{x^{\frac{3}{2}}}{x^{\frac{4}{3}}} = \left(\frac{3}{2}\right) - \left(\frac{4}{3}\right)$$

$$\frac{9}{6} - \frac{8}{6} = \frac{1}{6}$$

$$x^{\frac{1}{6}} = \sqrt[6]{x}$$

index

*Stuck set $x=2$ and use Calc.

38. Expand and simplify: $(4x-3)^2$

- ~~A.~~ $16x^2 + 9$
- ~~B.~~ $16x^2 - 12x + 9$
- ~~C.~~ $16x^2 - 24x - 9$
- D. $16x^2 - 24x + 9$

$$(4x-3)(4x-3)$$

$$\begin{array}{r} 4x - 4x \quad 16x^2 \\ 4x - 3 \quad -12x \\ 3 \cdot 4x \quad -12x \\ -3 \cdot -3 \quad 9 \end{array}$$

$$16x^2 - 24x + 9$$

39. Pam expanded and simplified $(x-3)(x^2+2x-4)$, as shown below.

Steps	
I.	$x(x^2+2x-4) - 3(x^2+2x-4)$
II.	$x^3+2x^2-4x-3x^2+6x-12$
III.	$x^3-x^2+2x-12$

$$-3 \cdot 2x = -6x$$

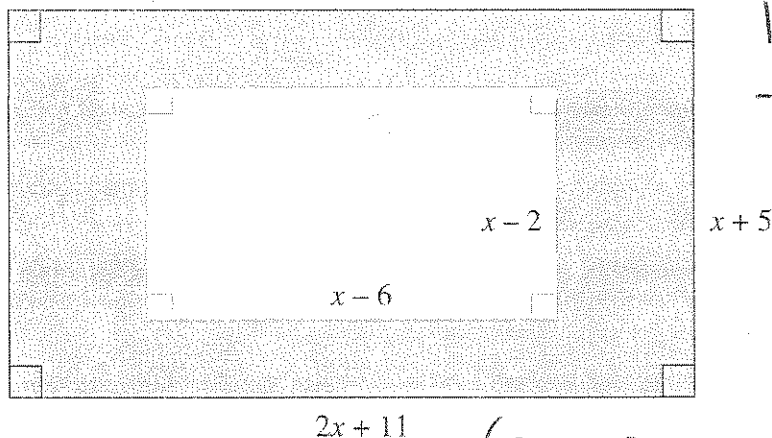
In which step is Pam's first error?

- A. Step I
- B. Step II
- C. Step III
- D. There is no mistake.

40. Determine an expression to represent the shaded area below.

Stuck Set $x=0$

Better yet
 $x=1$
 $13-6=7$
 $-5-1=5$
 $7-5=2$
 $7-5=2$



$11 \cdot 5 = 55$
 $-6 \cdot -2 = 12$
 $55 - 12 = 43$

- A. $x^2 + 43$ $x=0? \times$
- B. $x^2 + 13x + 67$ $x=0 \times \times$
- C. $x^2 + 29x + 43$ $x=1 \checkmark \checkmark \checkmark$
- D. $3x^2 + 13x + 67$ $x=0. \times$

$$(2x+11)(x+5) - (x-6)(x-2)$$

$$2x^2 + 21x + 55 - (x^2 - 8x + 12)$$

$$21 - (-8) = 29$$

$$x^2 + 29x + 43$$

41. Determine the greatest common factor of $12x^5y$, $4x^3y^2$ and $6x^2y^4$.

- A. $2xy$ needs x^3
- B. $2x^2y$
- C. $4x^3y^2$
- D. $12x^5y^4$

$x^2 \checkmark$
 $x^3 \checkmark$
 4 not work.
 $2 \checkmark$
 $x^2 \checkmark$

Smallest

$$4 = 1, 2, 4$$

$$x^3 = x \cdot x \cdot x$$

$$y^2 = y \cdot y$$

42. Which of the following expressions is a factor of $x^2 - 8x - 20$?

- A. $x-2$ need +
- B. $x-4$
- C. $x-5$
- D. $x-10$

$$1 \cdot -20 = -20$$

$$\begin{array}{c} \diagup \quad \diagdown \\ -10 \quad +2 = -8 \end{array}$$

$$\left(\frac{x^2 - 10x}{x} \right) \left(\frac{2x - 20}{2} \right)$$

$$x(x-5) 2(x-5)$$

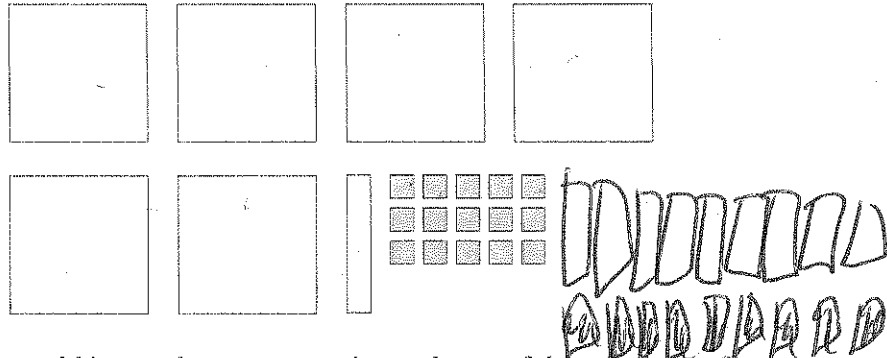
$$(x-5) 2(x-5)$$

43. When completely factored, how many factors does $2x^4 - 24x^2 - 128$ have?

- A. 2
- B. 3
- C. 4
- D. 5

A power of 4 needs 4.

44. Joe was asked to factor $6x^2 + x - 15$ and represent it with math tiles.



What additional tiles would he need to represent the total area of the two factors?

- A. 8 each of and
- B. 9 each of and
- C. 10 each of and
- D. 11 each of and

$$6x^2 + x - 15 \quad -90$$

$10 + -9 = 1$

need $10x$ π

$$\frac{6x^2 + 10x}{2x} + \frac{-9x - 15}{-3}$$

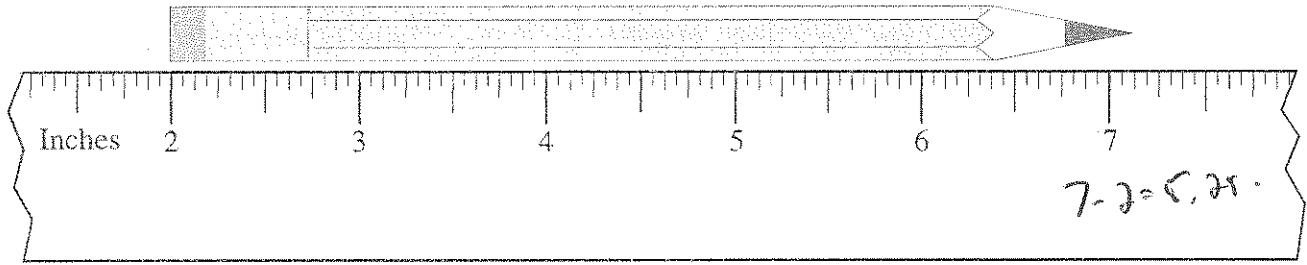
Check.

$$2x(3x + 5) - 3(3x + 5)$$

$$(2x - 3)(3x + 5)$$

$$6x^2 + 10x - 9x - 15$$

45. Using the ruler below, determine the length of the pencil.



- ~~A.~~ $5\frac{1}{8}$ " 5.125
- ~~B.~~ 5.2" 5.2
- C. $5\frac{1}{4}$ " 5.25
- ~~D.~~ $7\frac{1}{8}$ " 7.125

Each tick is $\frac{1}{16}$.

46. Jung was told to plant trees two steps apart. Which of the following estimates is closest to "two steps apart"?

- A. 6 ft
- ~~B.~~ 3 m too big
- ~~C.~~ 60 cm too small
- ~~D.~~ 30 in too small.

47. Which distance below is the longest?

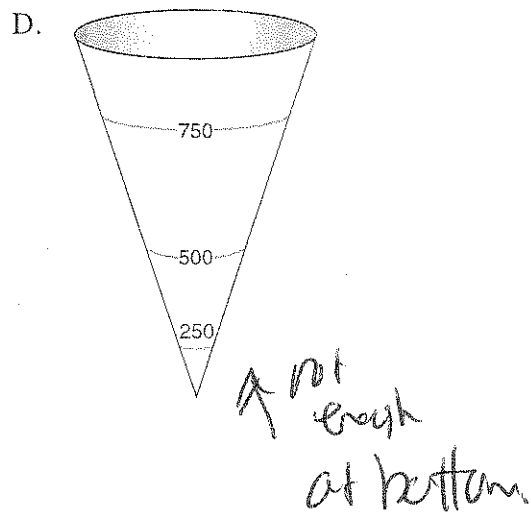
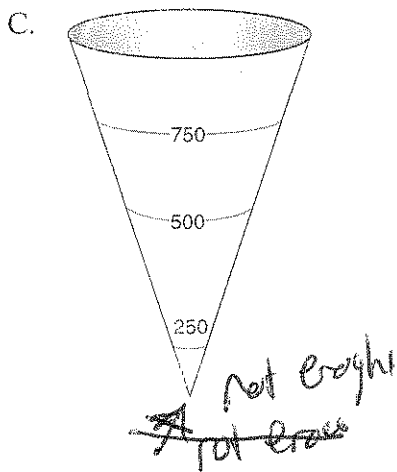
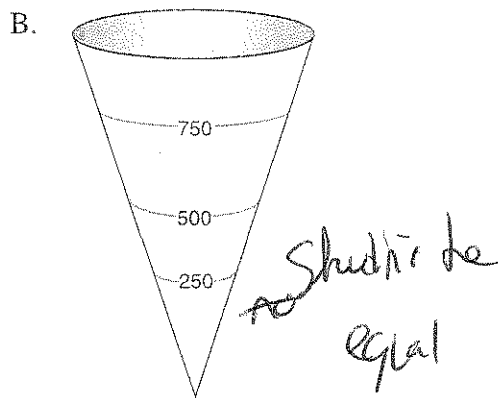
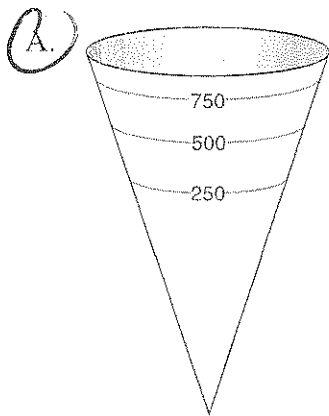
0.6 mi, 1000 yd, 1 km $\frac{900}{1000}$ m Same units
1 km 0.9 km.

- ~~A.~~ 0.6 mi
- ~~B.~~ 1000 yd
- C. 1 km
- ~~D.~~ 900 m

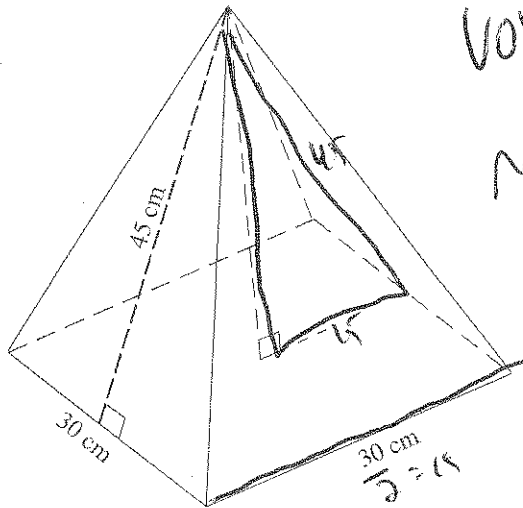
$$1000 \text{ yd} \times \frac{0.9144 \text{ m}}{1 \text{ yd}} \times \frac{1 \text{ km}}{1000 \text{ m}} = 0.9144 \text{ km}$$

$$0.6 \text{ mi} \times \frac{1.609 \text{ km}}{1 \text{ mi}} = 0.9654 \text{ km}$$

48. A cone-shaped water tank has a volume of 1000 litres. Which diagram best represents the 250 L, 500 L and 750 L marks outside of the water tank?



49. The slant height of the pyramid below is 45 cm. Calculate its volume.



$$Vol = \frac{1}{3} (\text{Area of base} \times h)$$

Need high.

$$c^2 = a^2 + b^2$$

$$45^2 - 15^2 = h^2$$

$$h = 42.42$$

$$\frac{1}{3} (30^2) \times 42.42$$

$$= 12726$$

- A. 10 062 cm³
- B. 12 728 cm³
- C. 13 500 cm³
- D. 40 500 cm³

50. A cylinder with a diameter of 10 cm and a height of 12 cm is half full of water. A sphere with a diameter of 5 cm is dropped into the cylinder. How far will the water level rise once the sphere is completely under the water?



① Vol of sphere = $\frac{4}{3} \pi r^3$

$$r = 2.5$$

$$= 65.5 \text{ cm}^3$$

- A. 0.57 cm
- B. 0.83 cm
- C. 5 cm
- D. 6 cm

After that question.

② need volume of 1cm increase

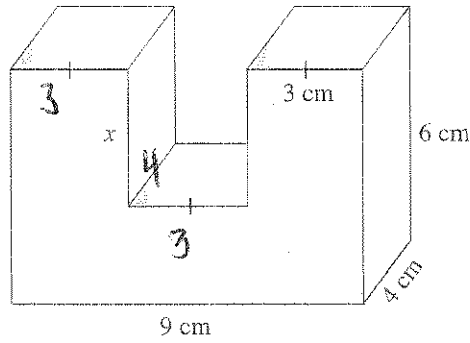
$$\text{Vol Cylinder} = \pi r^2 \cdot h = \pi \cdot 5^2 \cdot 1 = 78.5$$

the mass each 1cm ↑ is 78.5 cm³

$$\text{Sphere} \frac{65.5}{78.5} = 0.83 \text{ cm}$$

$$1 \text{ cm} \quad 78.5$$

51. The volume of the object below is 186 cm^3 . Calculate the length of x .



inc missing part
 $Vol = L \cdot w \cdot h = 9 \cdot 4 \cdot 6 = 216 \text{ cm}^3$

$$\begin{array}{r} 216 \\ -186 \\ \hline 30 \text{ cm}^3 \end{array}$$

$$30 \text{ cm}^3 = l \cdot w \cdot h$$

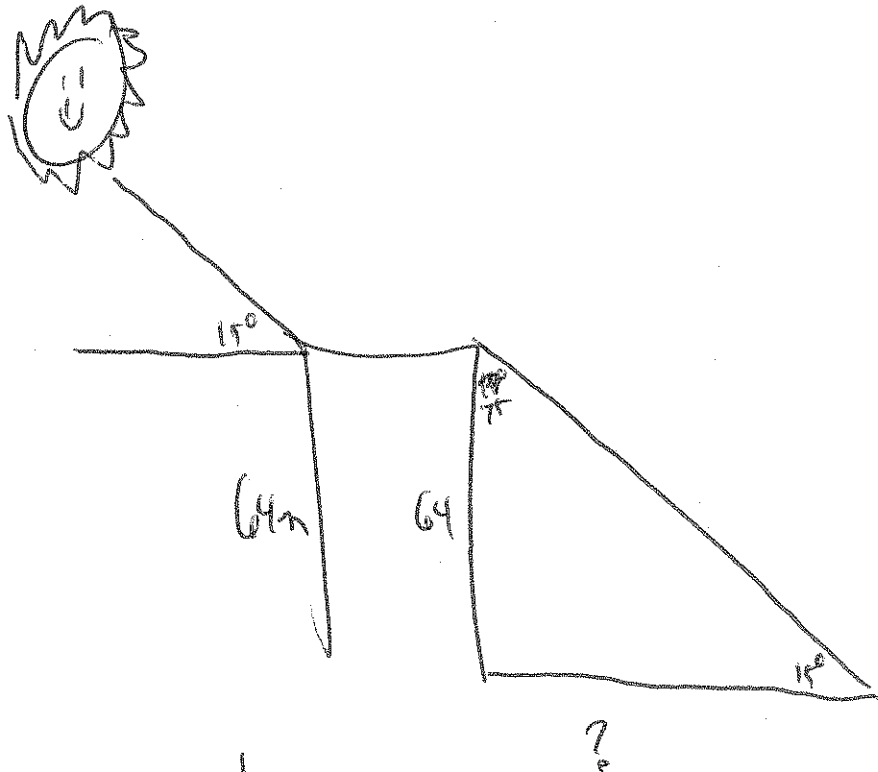
$$\frac{30}{4 \cdot 3} = \frac{30}{12} = x$$

$$x = 2.5 \text{ cm}$$

- A. 3.1 cm
- B. 2.5 cm
- C. 1.75 cm
- D. 1.25 cm

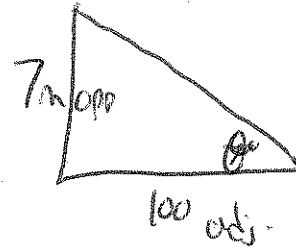
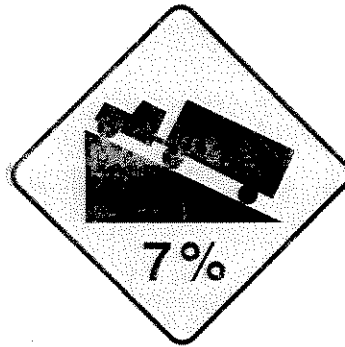
52. The angle of elevation of the sun is 15° . How long is the shadow of a 64 m tall building?

- A. 17 m
- B. 66 m
- C. 239 m
- D. 247 m



$$\tan 15^\circ = \frac{opp}{adj} = \frac{64}{?}$$

53. As Tracey is driving, she sees a sign telling her the road has a 7% grade (i.e., a rise of 7 metres for a horizontal change of 100 m). Which of the following expressions will calculate the angle between the road and the horizontal?



~~A~~ $\tan\left(\frac{7}{100}\right)$

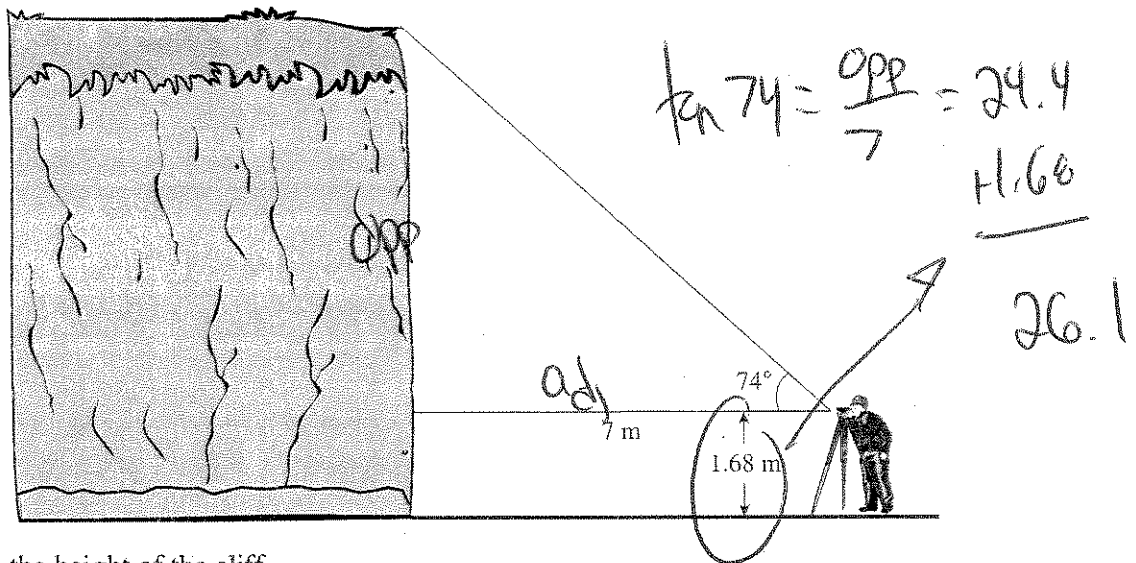
~~B~~ $\sin\left(\frac{7}{100}\right)$

C $\tan^{-1}\left(\frac{7}{100}\right)$

~~D~~ $\sin^{-1}\left(\frac{7}{100}\right)$

need $^{-1}$ for angle.

54. Mission's outdoor club collected the following data to determine the height of a cliff.

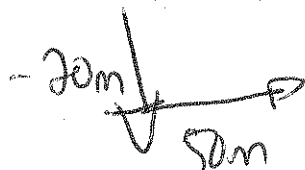


Calculate the height of the cliff.

- A. 3.7 m
 B. 8.4 m
 C. 24.4 m
 D. 26.1 m

55. A waterslide descends 20 m over a horizontal distance of 50 m. What is the slope of the waterslide? Answer, with a positive value, to the nearest tenth.

Record your answer neatly on the Answer Sheet.



$$m = \frac{20}{50} = 0.4$$

56. The slope of AB is $-\frac{2}{3}$. The slope of CD is $\frac{w}{24}$. Given $AB \parallel CD$, determine the value of w . Answer as an integer.

Record your answer neatly on the Answer Sheet.

$$\begin{matrix} \times 24 \\ -\frac{2}{3} = \frac{x}{24} \end{matrix} \times 24$$

$$\frac{-48}{3} = -16$$

57. The cost C , in dollars, to rent a car is determined by the formula $C(k) = 0.15k + 22$, where k is the number of kilometres driven. Calculate the value of k if $C(k) = 166$. Answer to the nearest kilometre.

Record your answer neatly on the Answer Sheet.

$$\begin{aligned} 166 &= 0.15k + 22 \\ \frac{144}{0.15} &= \frac{0.15k}{0.15} = 960 \text{ km.} \end{aligned}$$

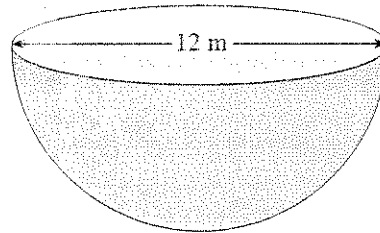
58. A bacteria culture doubles every hour. If there are 10 000 bacteria now, how many bacteria were there 4 hours ago? Answer to the nearest bacterium.

Record your answer neatly on the Answer Sheet.

2x

now	10000
-1	5000
-2	2500
-3	1250
-4	625

59. Calculate the surface area of the solid hemisphere below. Answer to the nearest square metre.



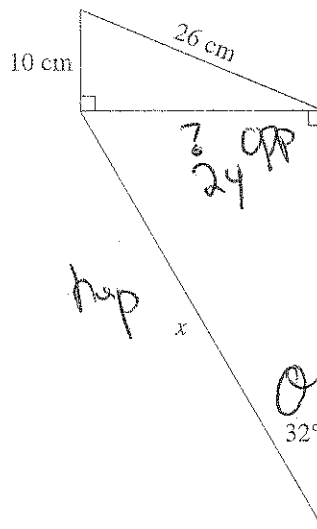
Record your answer neatly on the Answer Sheet.

$$SA_{\text{sphere}} = \pi d^2 \quad \pi 12^2 = 226 \text{ m}^2$$

$$SA_{\text{side}} = \pi r^2 \quad \pi 6^2 = 113.09$$

$$339 \text{ m}^2$$

60. Calculate the length of side x on the diagram below. Answer to the nearest centimetre.



$$26^2 - 10^2 = B^2$$

$$\sin 32 = \frac{24}{\text{hyp}}$$

$$\text{hyp} = \frac{24}{\sin 32}$$

$$= \frac{24}{0.5299} = 45.2$$

$= 45 \text{ cm}$

Record your answer neatly on the Answer Sheet.

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"/>