Grade 8 Math Final Exam – June 2012 – Answer Key

Section 1: Non-Calculator

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

6.	B
7.	D
8.	B
9.	C
10.	A

Section 2: Calculator

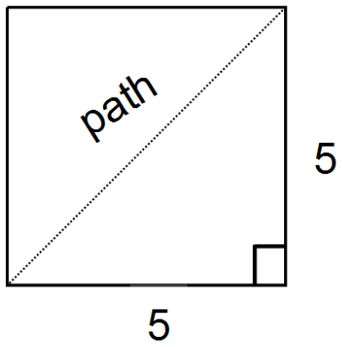
11.	B
12.	C
13.	A
14.	C
15.	D
16.	A
17.	B
18.	C/D
19.	A
20.	C

21.	B
22.	D
23.	B
24.	C
25.	A
26.	C
27.	B
28	A
29.	C
30.	C

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

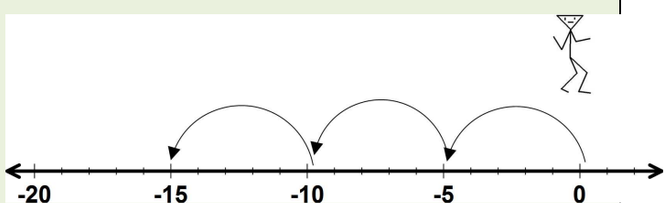
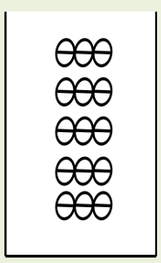
Grade 8 Mathematics Common Final Examination
Section A: Non-Calculator

1. What is the approximate length of the diagonal path, to the nearest tenth? Explain your answer. [3 Marks]



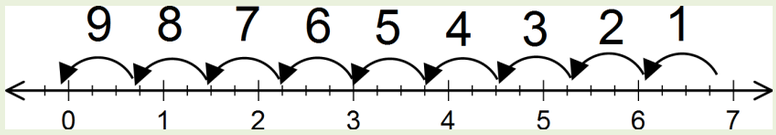
Marks	
	$C^2 = A^2 + B^2$
	$C^2 = 5^2 + 5^2$
1	$C^2 = 25 + 25$
	$\sqrt{C^2} = \sqrt{50}$
1	$C = \sqrt{50}$
	Students responses will vary however should include,
	• $\sqrt{49} = 7$
	• $\sqrt{64} = 8$
	• $\sqrt{50} \sim 7.1$
1	• **$\sqrt{50}$ is really close to $\sqrt{49}$ so it has to be really close to 7**

2. Calculate $(+3) \times (-5)$ by sketching a model of your choice (i.e. counters, number line, etc.) and state your answer. [2 Marks]

Marks	
	<u>One possible answer:</u>
1 for model	3 groups of -5 which is -15
	
1 for statement	<u>Another possible answer:</u>
	Three groups of -5 which is -15
	

3. Janet has two pieces of ribbon that are each $6\frac{3}{4}$ m long. She needs to cut each piece into smaller lengths of $\frac{3}{4}$ m. How many smaller pieces she will have in total?

[3 Marks]

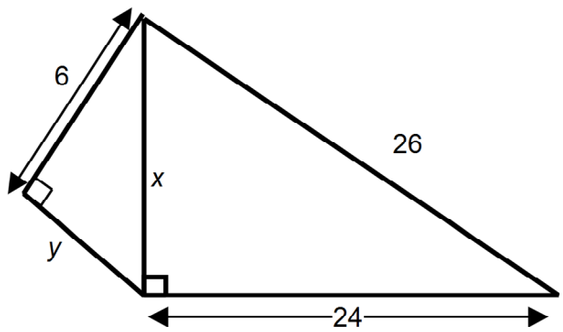
Marks	
	Methods may vary.
	One possible method of solving:
1	$6\frac{3}{4} \div \frac{3}{4}$
	$= \frac{27}{4} \div \frac{3}{4}$
1	$= \frac{27}{4} \times \frac{4}{3}$
0.5	$= \frac{27}{3}$
0.5	$= 9$ (one piece)
	When Janet get 18 smaller pieces.
	Another method of solving:
	

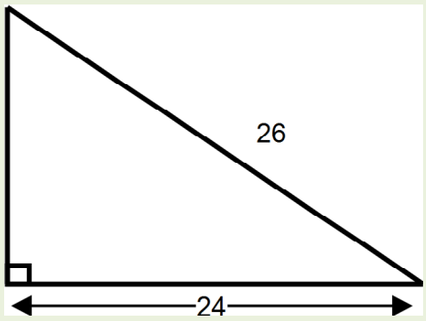
4. Solve: $-3(n + 2) = 15$ [2 Marks]

Marks	
	$\boldsymbol{-3(n + 2) = 15}$
0.5	$\boldsymbol{-3n - 6 = 15}$
0.5	$\boldsymbol{-3n - 6 + 6 = 15 + 6}$
0.5	$\boldsymbol{\frac{-3n}{-3} = \frac{21}{-3}}$
0.5	$\boldsymbol{n = -7}$

Grade 8 Mathematics Common Final Examination
Section B: Calculator

5. Determine the value of x. [3 Marks]

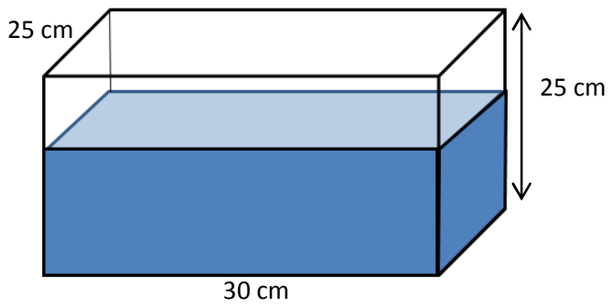


Marks	Triangle A	Marks	Triangle B
			
	$C^2 = A^2 + B^2$		$C^2 = A^2 + B^2$
	$26^2 = 24^2 + x^2$		$10^2 = y^2 + 6^2$
0.5	$676 = 576 + x^2$	0.5	$100 = y^2 + 36$
	$676 - 576 = x^2$		$100 - 36 = y^2$
0.5	$100 = x^2$	0.5	$64 = y^2$
	$\sqrt{100} = \sqrt{x^2}$		$\sqrt{64} = \sqrt{y^2}$
0.5	$10 = x$	0.5	$8 = y$

6. Evaluate: $\frac{2}{3}+1\frac{1}{3}\div\frac{5}{6}$ [3 Marks]

Marks	
	$\frac{2}{3}+1\frac{1}{3}\div\frac{5}{6}$
0.5	$=\frac{2}{3}+\frac{4}{3}\div\frac{5}{6}$
0.5	$=\frac{2}{3}+\frac{4}{3}\times\frac{6}{5}$
1	$=\frac{2}{3}+\frac{24}{15}$
	$=\frac{2\times5}{3\times5}+\frac{24}{15}$
0.5	$=\frac{10}{15}+\frac{24}{15}$
0.5	$=\frac{34}{15}=2\frac{4}{15}$

7. An aquarium has the dimensions 30 cm × 25 cm × 25 cm. The water is 8 cm from the top. What volume of water, in cm^3, is in the aquarium? [3 Marks]



Marks	
	This is one possible method to determine the solution,
	$Volume\ (V) = length(l) \times width(w) \times height(h)$
	$V = l \times w \times h$
1	$V_{water} = 30\text{cm} \times 25\text{cm} \times 17\text{cm}$
2	$V_{water} = 12\ 750\text{cm}^3$

8. Find the surface area of a cylinder with a diameter of 30 cm and the height of 20 cm. [3 Marks]

Marks	
	$Surface\ Area_{cylinder} = 2\pi r^2 + 2\pi rh$
0.5	$SA = 2\pi(15)^2 + 2\pi(15)(20)$
0.5	$SA = 2\pi(225) + 2\pi(15)(20)$
1	$SA = 1413 + 1884$
1	$SA = 3297\text{cm}^2$
	OR
	$Surface\ Area_{cylinder} = 2\pi r^2 + \pi dh$
0.5	$SA = 2\pi(15)^2 + \pi(30)(20)$
0.5	$SA = 2\pi(225) + \pi(30)(20)$
1	$SA = 1413 + 1884$
1	$SA = 3297\text{cm}^2$

9. Alyssa bought a Blue Ray Disc on sale for $34.00 which was 85% of the regular price.

(A) What was the regular price of the disc? [3 Mark]

Marks	
1	$\frac{34}{85} = 0.4$
	So, 1% of the number is 0.4 and 100% of the number is :
0.5	$0.4 \times 100 = 40$
	Therefore the original price of the Blue Ray Disc was $40.00

(B) What did she pay, including 13% sales tax?

Marks	
	$Taxes\ = \$34.00 \times HST$
0.5	$Taxes = \$34.00 \times 0.13$
0.5	$Taxes = \$4.42$
0.5	$Total\ Amount = \$34 + \$4.42\ = \$38.42$
	Alyson paid $4.42 in taxes on the Blue Ray Disc

10. In two stores, the same detergent is on special. Which is the better buy? Explain. [3 Mark]

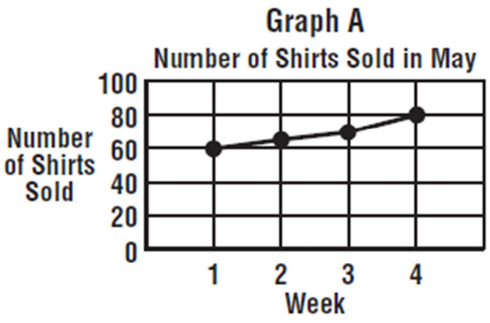
(A) 6 bottles for $12.48 (B) 7 bottles for $14.42

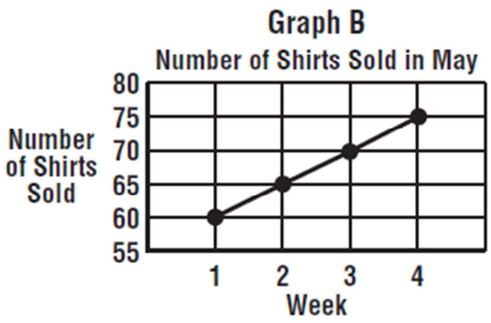
Marks	Situation A	Situation B
1 for each calculation 1 for statement of better buy	$\frac{12.48}{6} = 2.08$	$\frac{14.42}{7} = 2.06$ The better buy would be situation B 7 bottles for $14.42 because each bottle would cost $2.06.

11. A bookstore has 12 Math books and 15 Science books. If 6 Math books are sold, what is the new ratio in lowest terms, of math books to the total books. [3 Marks]

Marks	Math books : Total books
1	6:(15+6)
1	6:21
1	2:7

12. The two line graphs show sales of T-shirts at The Tee Shop for May.





Which graph could be misleading? Explain. (2 Marks)

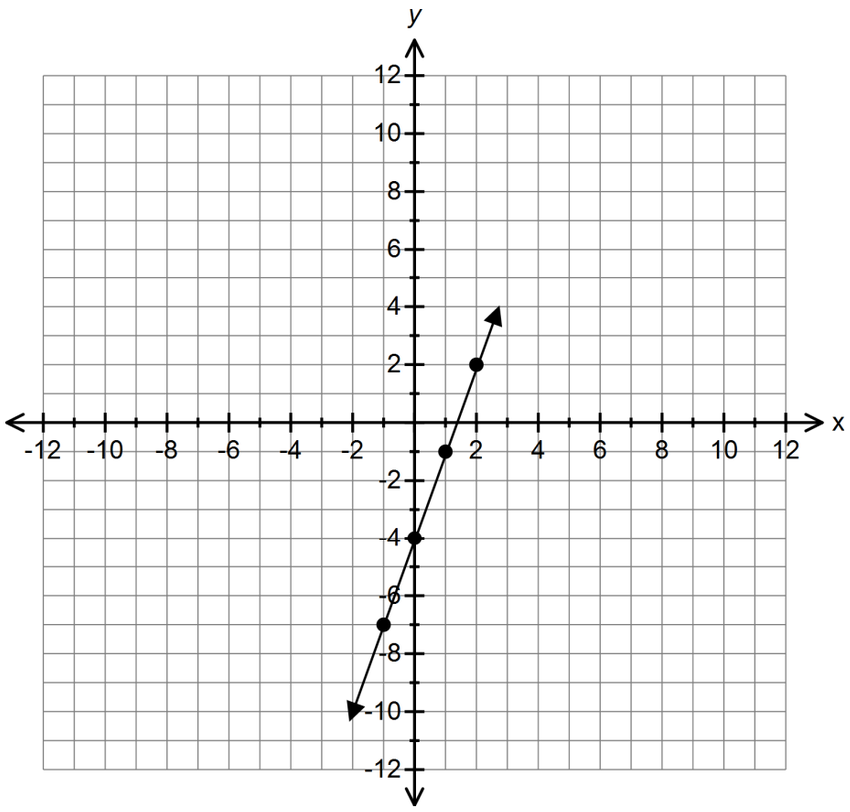
Marks	
2	Graph B could be misleading because the vertical axis does not begin at zero so the initial number of shirts sold may not be perceived as 60.

13. The equation of a linear relation is: $y = 3x - 4$

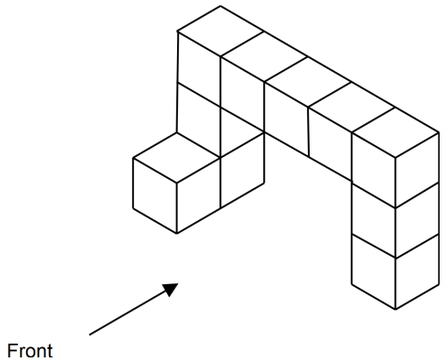
A. Complete this table of values for the relation. [1Mark]

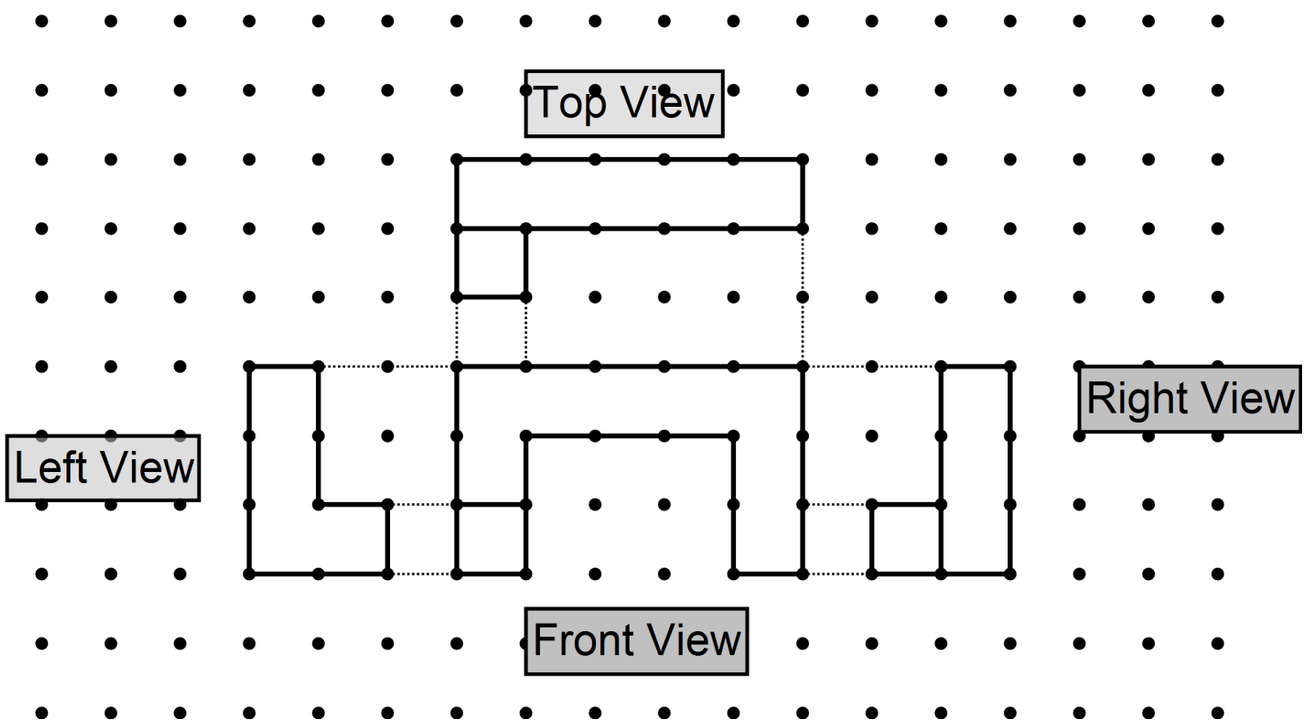
x	y
-1	-7
0	-4
1	-1
2	2

B. Graph the data from the table in part A on the grid below. [1 Mark]



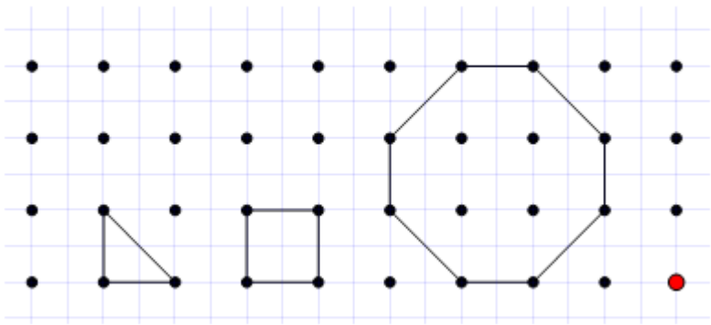
14. Draw and label any two views of this object? (Level 2 – 8SS5) [2 Marks]





Marks
1 for each view

15. Use **ALL** three objects to create a tessellation on the grid below. Repeat your tessellation at least twice. [3 marks]



Solutions will vary