Grade 7 Math Final Exam – June 2010 – Answer Key

Section A: Non-Calculator

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

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

Section B: Calculator

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

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

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

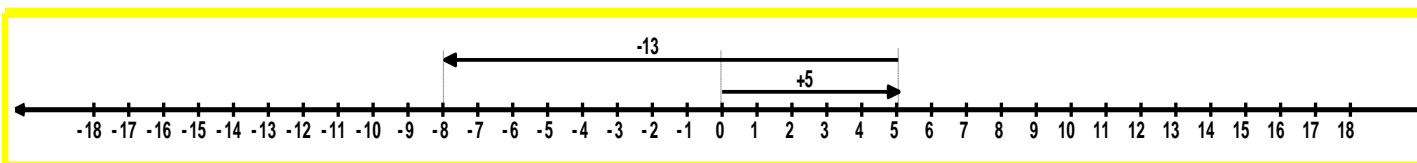## Section A - Constructed Response: Answers are to be done in the spaces provided.

1. Use a model (i.e. number line, algebra tiles, etc.) to determine the sum of (-13) and (+5). [3 marks]
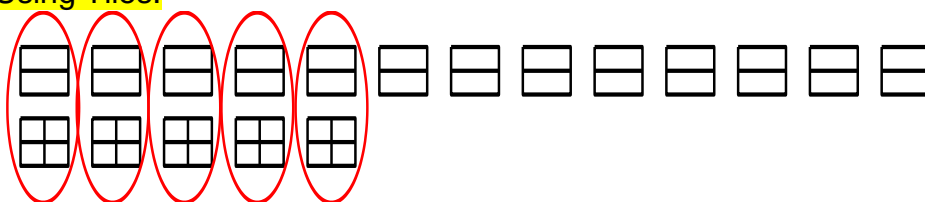
Using a 'number line' method

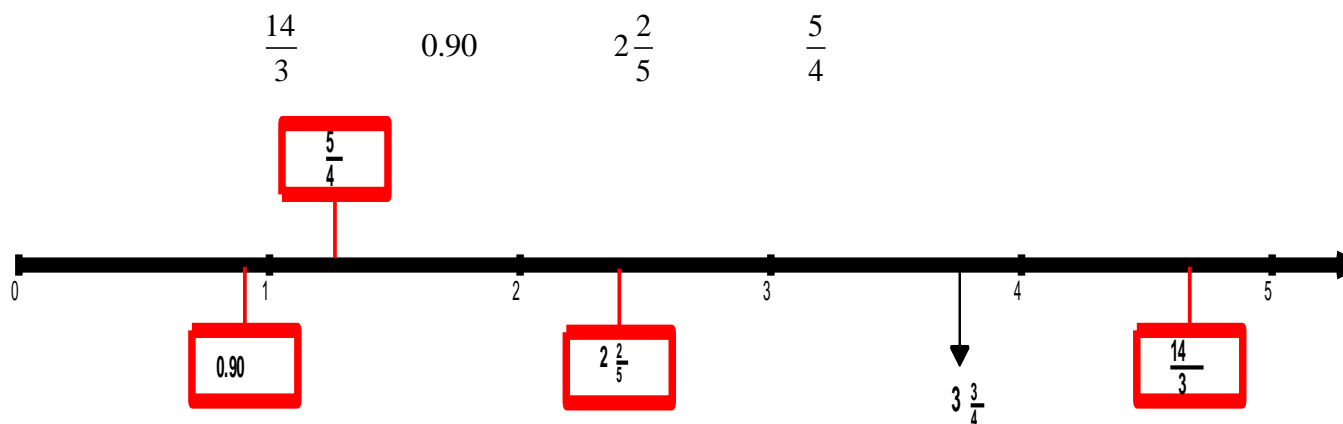$$(-13)+(+5)=(-8) \qquad OR \qquad (+5)+(-13)=(-8)$$
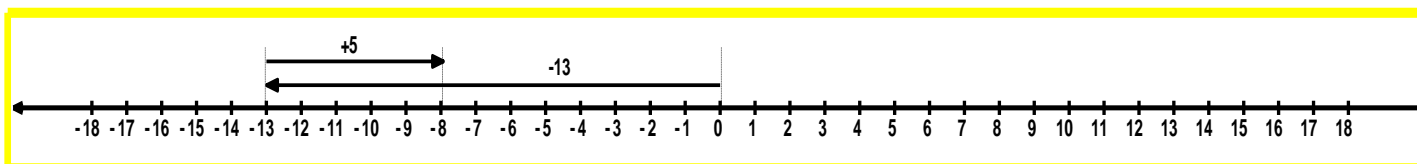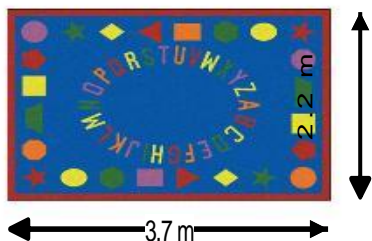

OR

Using Tiles:

$$(-13)+(+5)=(-8) \qquad OR \qquad (+5)+(-13)=(-8)$$

2. The number $3\frac{3}{4}$ is indicated on the number line below. Place the following four numbers on the number line in a similar manner. [2 marks]

$$\frac{14}{3} \qquad 0.90 \qquad 2\frac{2}{5} \qquad \frac{5}{4}$$

3. A rectangular shaped rug is $3.7\,m$ by $2.2\,m$. Determine the area of the rug.

[2 marks]

One possible way:

$$
\begin{array}{r}
{}^{1\,1}3.7 \\
\times\ 2.2 \\
\hline
7\,4 \\
{}^{1}7\,4 \\
\hline
8.14
\end{array}
$$

The area of the rug is $8.14\,m^2$

4. Lola and Jordan were given a total of 3 bags of flour to make cakes for the school cake-walk. Lola used $\frac{2}{3}$ bags of flour while Jordan ended up using $1\frac{3}{4}$ bags of flour. How much flour is left over? [3 marks]

One possible way:

$$\frac{2}{3}+1\frac{3}{4}$$

$$\frac{2}{3}+\frac{7}{4}$$

$$\left(\frac{4}{4}\right)\frac{2}{3}+\frac{7}{4}\left(\frac{3}{3}\right)\ \Rightarrow\ \frac{8}{12}+\frac{21}{12}=\frac{29}{12}$$

$$\therefore$$

$$3-\frac{29}{12}$$

$$\left(\frac{12}{12}\right)\frac{3}{1}-\frac{29}{12}=\frac{36}{12}-\frac{29}{12}=\frac{7}{12}$$

There are $\frac{7}{12}$ bags of flour left over.

**Section B: Constructed Response: Answers are to be done in the spaces provided.
Show all necessary workings.**

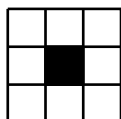5.   White tiles are placed around black tiles to create the pattern below:
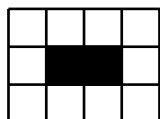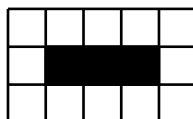
Figure 1   Figure 2   Figure 3

A) Complete this table. [1 mark]

Figure number (n)	Number of white tiles (w)
1	8
2	10
3	12
4	14
5	16

Note: If a student completes the table incorrectly but answers the questions that follow correctly (based on the incorrect table) then full credit should be given for the rest of the questions.

B) Graph the relation on the grid below. [2 marks]

Number of White Tiles per Figure Number
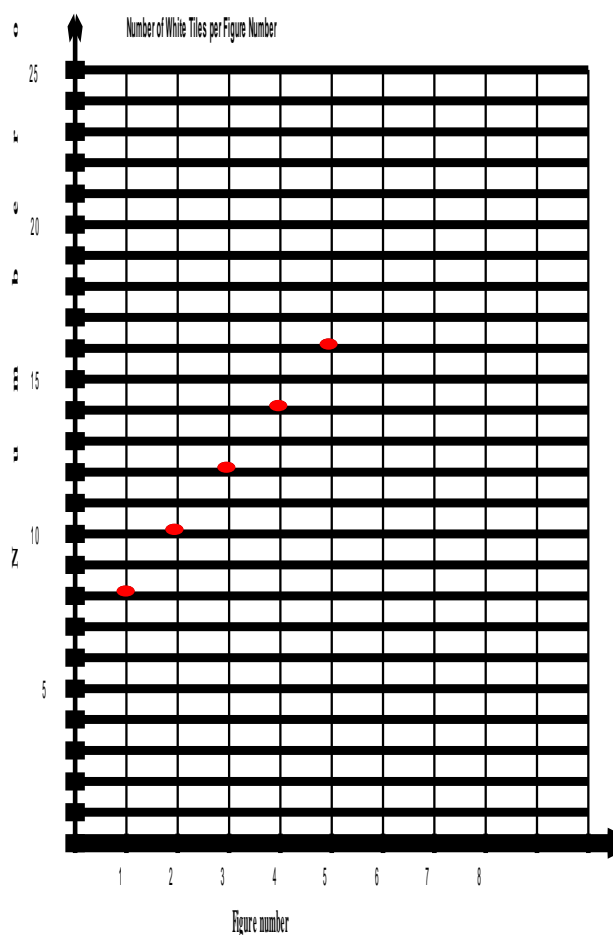
Figure number

C) Write a linear relation to represent how the number of white squares, w, is related to the figure number, n. [2 marks]

$$w = 2n + 6$$

D) How many white tiles would be in figure 8? [1 mark]

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6. Megan is buying new golf bag that is selling for $139.89. The tax rate in Newfoundland and Labrador is 13%. She hands the cashier $200.00. How much change does she get back? [2 marks]

$139.89 \times 0.13 = \$18.19$

$139.80 + \$18.19 = \$158.08$

$\therefore \quad \$200.00 - \$158.08 = \$41.92$

Megan will get $41.92 in change back from her purchase.

OR

$139.89 \times 1.13 = \$158.08$

$\therefore \quad \$200.00 - \$158.08 = \$41.92$

Megan will get $41.92 in change back from her purchase.

7. Dave and Sherry did a survey as part of their science project and determined that 52 out of 74 Gr. 7 students in their school preferred the taste of Pepsi to Coke. Is it a fair statement to say that approximately 80% of the students preferred drinking Pepsi to Coke? Explain your answer. [3 marks]

$"52 \text{ out of } 74" \Rightarrow \dfrac{52}{74} = 0.\overline{702}$

$80\% \Rightarrow 0.80$

$NO, I \text{ don't think that this}$

$is \text{ a fair statement } since \text{ } 0.8 > 0.\overline{702}. \quad i.e. \text{ about } 0.1 \text{ more}$

$In \text{ other words, about } 70\% \text{ NOT } 80\% \text{ of the Gr.7 students prefer}$

$Pepsi \text{ to Coke.}$

8. Daniel asked the 80 Gr.7 students at his school to choose the type of television show they watch the most. He will use the data to construct a circle graph.

A) Complete the table below. [2 marks]

Type of Television Show	Number of Students	Fraction of Total	Percent of Students (%)	Central Angle (°)
Reality	20	$\frac{20}{80}$	25	90
Sports	12	$\frac{12}{80}$	15	54
Comedy sitcom	32	$\frac{32}{80}$	40	144
Music video	16	$\frac{16}{80}$	20	72
Total	80	1	100	360

B) Use this data to construct and label a circle graph. [2 marks]

Type of Television Show Watched
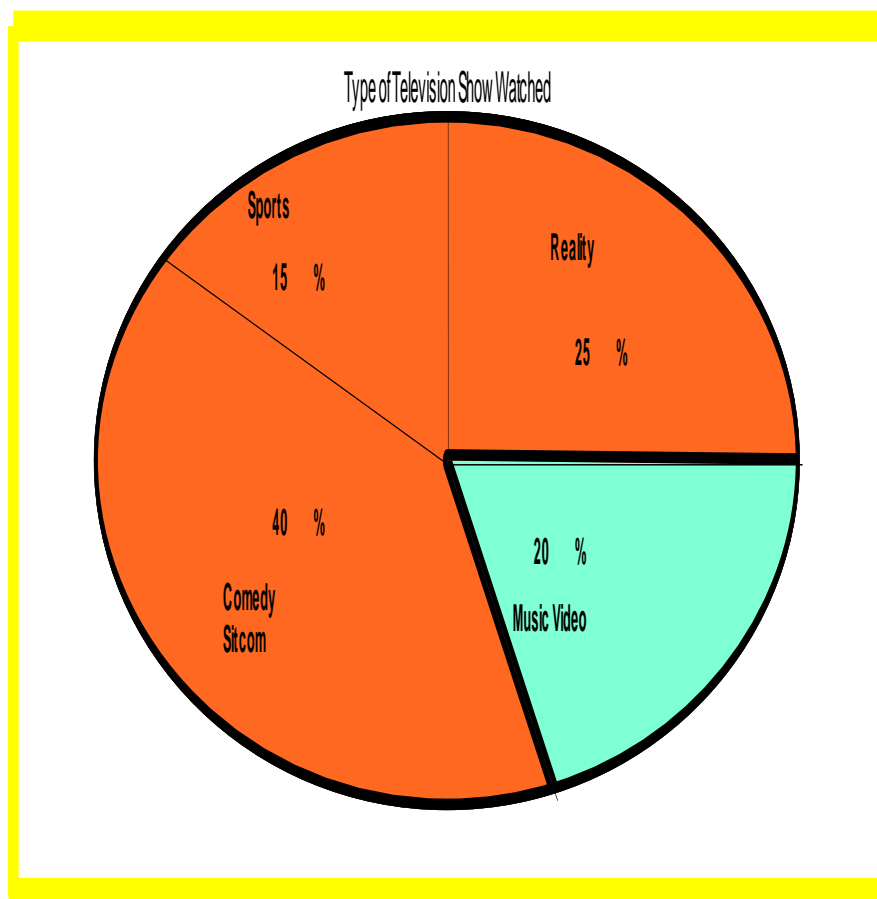
9. Nicki was asked to do this subtraction problem: $\dfrac{5}{6} - \dfrac{1}{4}$

Her workings and solution are shown below. Is Nicki correct? Explain your answer. [3 marks]

$$\frac{5}{6} - \frac{1}{4}$$

$$\frac{5-1}{6-4}$$

$$\frac{4}{2} = 2$$

Example Answer:

No, Nicki is NOT correct. You cannot subtract the numerators and denominators like that. To add/subtract fractions with unlike denominators you must first determine a common denominator, then you can add/subtract. The correct solution is as follows:

$$\frac{5}{6} - \frac{1}{4} \Rightarrow \frac{2}{2}\bullet\frac{5}{6} - \frac{1}{4}\bullet\frac{3}{3} \Rightarrow \frac{10}{12} - \frac{3}{12} = \frac{10-3}{12} = \frac{7}{12}$$

$$\therefore \frac{7}{12} \text{ is the correct solution.}$$

10. Solve the following equations:

A) $\dfrac{x}{5} = 9$ [1 mark]

$$5\bullet\frac{x}{5} = 5\bullet 9 \quad\Rightarrow\quad \cancel{5}\bullet\frac{x}{\cancel{5}} = 45 \Rightarrow x = 45$$
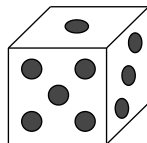
B) $3x = 42$ [1 mark]

$$\frac{3x}{3} = \frac{42}{3} \quad\Rightarrow\quad \frac{\cancel{3}x}{\cancel{3}} = \frac{\overset{14}{\cancel{42}}}{\cancel{3}} \Rightarrow x = 14$$
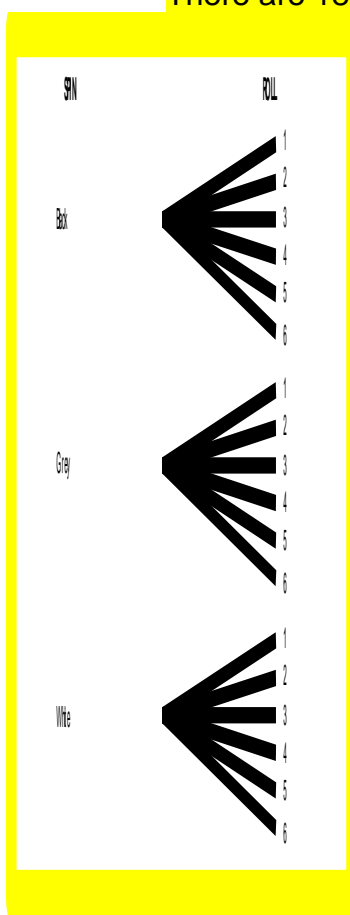
C) $4x + 5 = 33$ [2 marks]

$$4x + 5 - 5 = 33 - 5$$

$$4x = 28 \quad\Rightarrow\quad \frac{4x}{4} = \frac{28}{4} \quad\Rightarrow\quad \frac{\cancel{4}x}{\cancel{4}} = \frac{\overset{7}{\cancel{28}}}{\cancel{4}} \Rightarrow x = 7$$

11.   The spinner and standard die shown below are used in a game.

BLACK
WHITE
GREY

A)   Use a model (tree diagram, table, etc.) to determine all possible outcomes.   [2 marks]

There are 18 possible outcomes

SPIN   ROLL

Black

Grey

White

OR

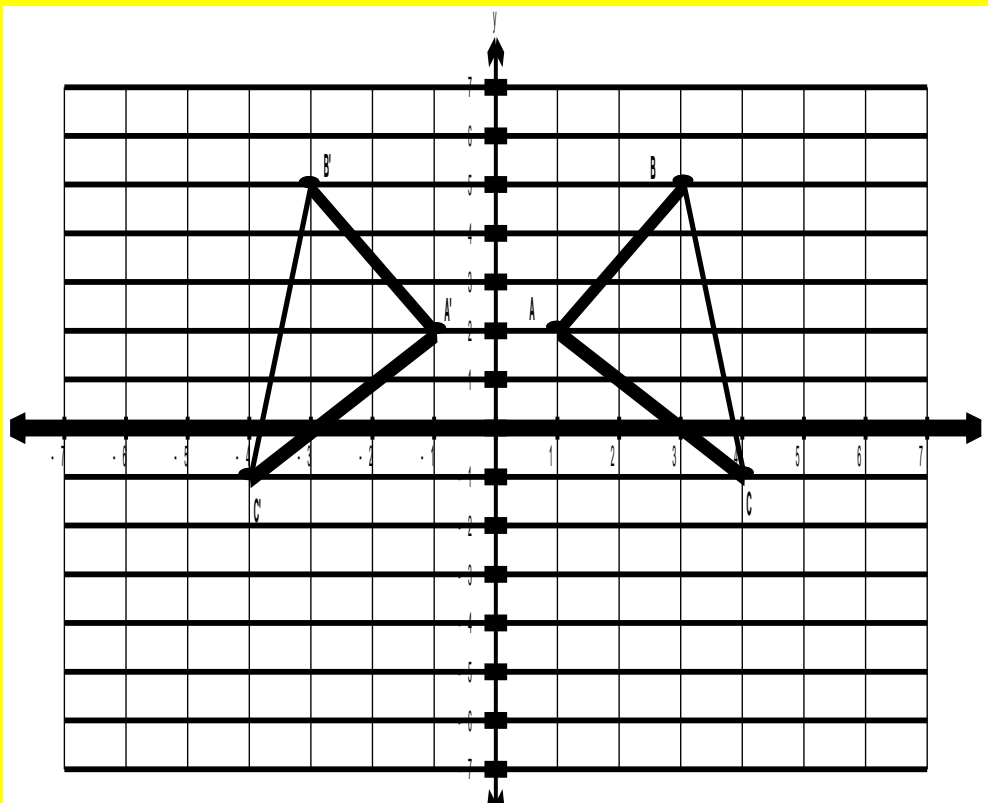| SPINNER	DIE	SPINNER	DIE
Black	1	White	1
Black	2	White	2
Black	3	White	3
Black	4	White	4
Black	5	White	5
Black	6	White	6
Grey	1		
Grey	2		
Grey	3		
Grey	4		
Grey	5		
Grey	6		

B)   What is the probability of spinning 'Black' or 'Grey' and rolling a 'six'?
                                                                          [1 mark]

$$\frac{2}{18} \Rightarrow \frac{1}{9}$$

12. Construct the perpendicular bisector of XY. [2 marks]

NOTE: There are several ways this can be done. i.e. Paper folding, Mira technique, Ruler technique, Compass/Ruler technique. Teachers are to use their judgement here.

13. Draw $\triangle ABC$ with vertices $A(1,2), B(3,5)$, and $C(4,-1)$ on the coordinate plane. Reflect $\triangle ABC$ in the y-axis to form $\triangle A'B'C'$. What are the coordinates of A' and C'? [2 marks]

$A' = (-1,2)$ $C' = (-4,-1)$