

Grade 9 Mathematics
Unit 1 - Numeracy
Outcomes: A2, A4, A5, A6, B1, B2, B3, B7

Name: _____

Selected Response Circle the correct response.

1. Which number is an integer but **not** a whole number?
A. - 6.3 B. - 4 C. 4.2 D. 8

2. To which number systems does the number - 120 belong?
A. Integers, Natural, Irrational
B. Integer, Rational, Real
C. Irrational, Real, Whole
D. Natural, Rational, Whole

3. 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.

4. Which list shows the numbers $\left\{\frac{5}{4}, 1.2, -3\frac{1}{3}, -3.3, \pi\right\}$ in order from smallest to largest?
A. $\left\{\frac{5}{4}, 1.2, 3\frac{1}{3}, -3.3, \pi\right\}$
B. $\left\{-3.3, -3\frac{1}{3}, 1.2, \frac{5}{4}, \pi\right\}$
C. $\left\{-3\frac{1}{3}, -3.3, \frac{5}{4}, 1.2, \pi\right\}$
D. $\left\{-3\frac{1}{3}, -3.3, 1.2, \frac{5}{4}, \pi\right\}$

5. Calculate: $(-2) + 4 \times (-4) - 5$
A. - 23 B. - 18 C. -13 D. -9

6. Calculate: $\frac{2}{3} - 1\frac{1}{2} \times \frac{3}{4}$.
A. $\frac{-11}{24}$
B. $\frac{-5}{8}$
C. $\frac{-1}{12}$
D. $\frac{43}{24}$

7. There are $2\frac{3}{4}$ cups of flour in a recipe for one dozen 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. $17\frac{7}{8}$

8. A dump truck can hold $3\frac{3}{4}$ tonnes of gravel. How many trips are needed to move 35 tonnes of gravel using this truck?

- A. 9
B. 10
C. 131
D. 132

9. Which pair of matrices can be added?

A. $\begin{bmatrix} 2 & 1 \\ 1 & 3 \end{bmatrix} + \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$

B. $\begin{bmatrix} 1 & 4 & 3 \end{bmatrix} + \begin{bmatrix} 2 \\ 0 \\ 5 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 3 & 5 \\ 4 & 2 & 0 \end{bmatrix} + \begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$

D. $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} + \begin{bmatrix} 3 & 2 & 1 \\ 6 & 9 & 8 \\ 1 & 2 & 5 \end{bmatrix}$

10. What is $\frac{3}{4} - \left(-\frac{1}{3}\right)$?

A. $-\frac{13}{12}$

B. $-\frac{5}{12}$

C. $\frac{5}{12}$

D. $\frac{13}{12}$

11. Two matrices have been subtracted as shown below. What is the missing element?

$$\begin{bmatrix} 1 & 1 \\ -2 & 4 \\ 3 & 2 \end{bmatrix} - \begin{bmatrix} 3 & 5 \\ -3 & ? \\ 1 & -1 \end{bmatrix} = \begin{bmatrix} -2 & -4 \\ 1 & 5 \\ 2 & 3 \end{bmatrix}$$

- A. -5 B. -1 C. 1 D. 9

12. Louise calculated $\frac{1}{2} - \left(\frac{-2}{3}\right) \div \frac{4}{3}$. Her workings are shown below. In which line did she first make a mistake?

$$\frac{1}{2} - \left(\frac{-2}{3}\right) \div \frac{4}{3}$$

line A = $\frac{1}{2} - \left(\frac{-2}{3}\right) \times \frac{3}{4}$

Line B = $\frac{1}{2} - \left(\frac{-6}{12}\right)$

Line C = $\frac{1}{2} - \left(\frac{-1}{6}\right)$

Line D $\frac{3}{6} + \left(\frac{1}{6}\right)$
 $= \frac{4}{6} = \frac{2}{3}$

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

Constructed Response. Answer all questions and show all workings. Full marks will not be given for partial solutions.

1 Evaluate:

A $\frac{4}{9} \div \frac{-2}{9} + \left(-\frac{1}{9}\right) - \frac{3}{9}$

B $\frac{3}{4} + \left(-\frac{1}{3} \div \frac{2}{9}\right) \times \left(-\frac{3}{4}\right)$

C
$$\left(\frac{2}{3}\right)^2 + \frac{1}{2}\left(\frac{1}{4} - \frac{1}{6}\right)$$

D
$$1\frac{2}{3} \div \left(\frac{5}{7} - 3\frac{1}{14}\right) + \frac{-1}{2}$$

- 2 A piece of rope $7\frac{1}{2}$ meters long is used to make a clothesline between two vertical poles. If the clothesline stretches tightly between the two poles and $\frac{5}{8}$ meters of rope is used to make a knot around each pole, how many meters apart are the two poles?

- 3 Sam has $2\frac{3}{4}$ square meters of material. To make a jacket, $\frac{2}{3}$ of the material is needed. How many square meters of material would be left over after she makes the jacket?

4. Given: $A = \begin{bmatrix} 1 & 3 \\ 3 & -2 \\ 5 & -4 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & -4 \\ 7 & 5 \\ -6 & 2 \end{bmatrix}$, find $-3A - B$.

5. Menihek High School was selling chocolate bars for a fund-raiser. The table below shows the number of bars sold by each grade level in junior high.

	Grade 8	Grade 9
Almonds	120	106
chocolate	82	85
Mint	15	7

- A. Each bar is sold for \$3.00. Create matrix S to represent the sales of each class for the different types of chocolate bars.
- B. What is the dimension of matrix S ?
- C. The school receives 20% of the sales. Create matrix P to represent the money the school collected from the sale of the chocolate bars by each class.