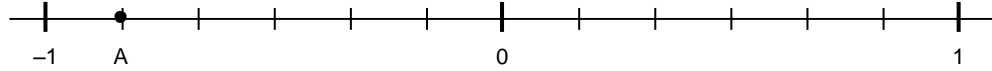# January Exam Review - Unit 3

Multiple Choice
Identify the choice that best completes the statement or answers the question.

_____ 1. Which rational number is represented by the letter A on the number line?

a. –0.8   c. –5

b. $-\dfrac{5}{6}$ d. –0.5

_____ 2. Determine this sum. $\dfrac{14}{7}+\left(-\dfrac{15}{14}\right)$

a. $\dfrac{13}{14}$ b. $-\dfrac{13}{14}$ c. $\dfrac{1}{7}$ d. $\dfrac{-1}{7}$

_____ 3. A student first borrowed $40.25, then borrowed another $15.75 from his father. He then paid back $20.75. How much does he still owe his father?

a. $3.75   b. $45.25   c. $24.50   d. $35.25

_____ 4. Yesterday, the temperature of a freezer was $-4.4°C$. When the technician checked the freezer today, its temperature had decreased by $9.8°C$. Determine the temperature of the freezer today.

a. $-5.4°C$ b. $5.4°C$ c. $14.2°C$ d. $-14.2°C$

_____ 5. Determine this difference. $\dfrac{18}{7}-\left(-\dfrac{5}{7}\right)$

a. $\dfrac{23}{7}$ b. $-\dfrac{13}{7}$ c. $-\dfrac{23}{7}$ d. $\dfrac{13}{7}$

___ 6. Which expressions have the same answer as $-1\dfrac{2}{3}-(-5)$?

i) $5+1\dfrac{2}{3}$ ii) $-5+1\dfrac{2}{3}$ iii) $-1\dfrac{2}{3}+5$ iv) $5-1\dfrac{2}{3}$

a. iii and iv   b. ii and iv   c. i and ii   d. i and iii

_____ 7. Determine this difference. $-\dfrac{5}{2}-\left(-\dfrac{9}{5}\right)$

a. $-\dfrac{43}{10}$ b. $-\dfrac{7}{10}$ c. $\dfrac{7}{10}$ d. $\dfrac{43}{10}$

_____ 8. Determine this difference.

$-4\dfrac{2}{3}-2\dfrac{1}{2}$

a. $-7\dfrac{1}{6}$ b. $7\dfrac{1}{6}$ c. $2\dfrac{1}{6}$ d. $-2\dfrac{1}{6}$

____ 9. Determine this product. $\left(-\dfrac{3}{2}\right)\left(-\dfrac{5}{4}\right)$

    a. $-\dfrac{11}{4}$ b. $-\dfrac{15}{8}$ c. $\dfrac{15}{8}$ d. $\dfrac{11}{4}$

____ 10. Determine this product.

$\left(-4\dfrac{1}{3}\right)\left(1\dfrac{4}{5}\right)$

    a. $7\dfrac{4}{5}$ b. $2\dfrac{8}{15}$ c. $-2\dfrac{8}{15}$ d. $-7\dfrac{4}{5}$

____ 11. The price of a share changed by −$1.45. A person owns 190 shares.
By how much did his shares change in value?

    a. −$85.50   b. −$275.50   c. +$275.50   d. −$131.03

____ 12. Determine this quotient.

$\left(-\dfrac{5}{2}\right)\div\left(\dfrac{2}{7}\right)$

    a. $-\dfrac{7}{5}$ b. $-\dfrac{4}{35}$ c. $-\dfrac{35}{4}$ d. $-\dfrac{5}{7}$

____ 13. Determine this quotient.

$1\dfrac{1}{2}\div\left(-2\dfrac{3}{5}\right)$

    a. $-1\dfrac{11}{15}$ b. $-\dfrac{15}{26}$ c. $-\dfrac{10}{39}$ d. $-3\dfrac{9}{10}$

____ 14. Evaluate.

$\dfrac{5}{6}\div\left(\dfrac{4}{3}+\dfrac{1}{6}\right)$

    a. $\dfrac{25}{54}$ b. $\dfrac{8}{15}$ c. $\dfrac{5}{9}$ d. $\dfrac{19}{24}$

____ 15. A student has $1298 in her savings account. She withdraws $95 each week.
A formula for calculating the amount of money remaining in her account is $A = T - 95w$, where T dollars is
the original amount and w is the number of weeks she has been withdrawing money.
Determine the amount of money remaining in her account after 13 weeks.

    a. $63   b. $1235   c. $1216   d. $1190

Short Answer

16. Order these numbers from least to greatest. $-\dfrac{3}{4},\ -\dfrac{7}{9},\ -\dfrac{5}{6},\ -\dfrac{2}{3}$ 17. Determine this sum. $-4\dfrac{3}{4}+\left(-1\dfrac{3}{5}\right)$

18. Determine this difference. $\dfrac{6}{5}-\left(-\dfrac{7}{5}\right)$ 19. Evaluate this expression. $\dfrac{11}{2}-\left(-\dfrac{7}{5}\right)+\left(-\dfrac{13}{4}\right)$

20. Determine this product. $\left(3\frac{1}{2}\right)\left(-3\frac{2}{3}\right)$

21. Determine this product. $\left(\frac{3}{2}\right)\left(-\frac{3}{2}\right)\left(-\frac{5}{7}\right)$

22. Determine this quotient. $\left(-\frac{4}{3}\right)\div\left(-\frac{5}{3}\right)$

23. Determine this quotient. $\left(-8\frac{2}{5}\right)\div\left(-1\frac{4}{5}\right)$

24. Evaluate. $\frac{2}{3}-\left(-\frac{7}{12}\right)\left(-\frac{4}{21}\right)$

25. Evaluate. $1\frac{7}{8}\times2\frac{2}{5}-1\frac{3}{4}$

26. Evaluate. $\left[\frac{1}{3}+\frac{3}{5}\right]\div\left[\left(-\frac{5}{9}\right)\times\frac{12}{25}\right]$

27. Evaluate: $\left[\frac{8}{9}\times\left(-\frac{5}{12}\right)\right]\div\left(-\frac{4}{9}\right)$

Problem

28. Melissa earns $45.25 working in a coffee shop, and $18.25 for babysitting.
    She spends $31.64 on art supplies and $15.48 on a computer game.
    a) Write an addition statement to represent Melissa's income and expenditure.
    b) How much money does Melissa have left?

29. Evaluate this expression. Show your work.
    $$-2\frac{3}{4}-(-4\frac{1}{3})-2\frac{5}{6}$$

30. A fishing resort has 21 cabins, all of which need to be repainted.
    The average cost of painting a cabin is $490.47.
    a) Write a multiplication statement with rational numbers to determine the cost of painting the cabins.
    b) The resort has a budget of $10 524.00.
       How much money will be left in the budget after all the cabins are painted?

31. Evaluate. Show your work.
    $$\left[1\frac{5}{7}\times\left(-3\frac{5}{6}\right)\right]\div\left[\left(-2\frac{1}{10}\right)\div0\frac{7}{8}\right]$$

January Exam Review - Unit 3
Answer Section

MULTIPLE CHOICE

1.	ANS: B	PTS: 1	DIF: Easy	REF: 3.1 What Is a Rational Number?
2.	ANS: A	PTS: 1	DIF: Moderate	REF: 3.2 Adding Rational Numbers
3.	ANS: D	PTS: 1	DIF: Moderate	REF: 3.2 Adding Rational Numbers
4.	ANS: D	PTS: 1	DIF: Moderate	REF: 3.2 Adding Rational Numbers
5.	ANS: A	PTS: 1	DIF: Easy	REF: 3.3 Subtracting Rational Numbers
6.	ANS: A	PTS: 1	DIF: Easy	REF: 3.3 Subtracting Rational Numbers
7.	ANS: B	PTS: 1	DIF: Moderate	REF: 3.3 Subtracting Rational Numbers
8.	ANS: A	PTS: 1	DIF: Moderate	REF: 3.3 Subtracting Rational Numbers
9.	ANS: C	PTS: 1	DIF: Moderate	REF: 3.4 Multiplying Rational Numbers
10.	ANS: D	PTS: 1	DIF: Moderate	REF: 3.4 Multiplying Rational Numbers
11.	ANS: B	PTS: 1	DIF: Moderate	REF: 3.4 Multiplying Rational Numbers
12.	ANS: C	PTS: 1	DIF: Easy	REF: 3.5 Dividing Rational Numbers
13.	ANS: B	PTS: 1	DIF: Moderate	REF: 3.5 Dividing Rational Numbers
14.	ANS: C	PTS: 1	DIF: Moderate	REF: 3.6 Order of Operations with
15.	ANS: A	PTS: 1	DIF: Moderate	REF: 3.6 Order of Operations with

SHORT ANSWER

16. ANS:

$$-\frac{5}{6}, \ -\frac{7}{9}, \ -\frac{3}{4}, \ -\frac{2}{3}$$

PTS: 1   DIF: Difficult   REF: 3.1 What Is a Rational Number?

17. ANS:

$$-6\frac{7}{20}$$

PTS: 1   DIF: Moderate   REF: 3.2 Adding Rational Numbers

18. ANS:

$$\frac{13}{5}$$

PTS: 1   DIF: Easy   REF: 3.3 Subtracting Rational Numbers

19. ANS:

$$\frac{73}{20}$$

PTS: 1   DIF: Difficult   REF: 3.3 Subtracting Rational Numbers

20. ANS:

$-12\frac{5}{6}$

PTS: 1   DIF: Moderate   REF: 3.4 Multiplying Rational Numbers

21. ANS:

$\frac{45}{28}$

PTS: 1   DIF: Difficult   REF: 3.4 Multiplying Rational Numbers

22. ANS:

$\frac{4}{5}$

PTS: 1   DIF: Easy   REF: 3.5 Dividing Rational Numbers

23. ANS:

$4\frac{2}{3}$

PTS: 1   DIF: Moderate   REF: 3.5 Dividing Rational Numbers

24. ANS:

$\frac{5}{9}$

PTS: 1   DIF: Easy   REF: 3.6 Order of Operations with Rational Numbers

25. ANS:

$2\frac{3}{4}$

PTS: 1   DIF: Easy   REF: 3.6 Order of Operations with Rational Numbers

26. ANS:

$-\frac{7}{2}$, or $-3\frac{1}{2}$

PTS: 1   DIF: Moderate   REF: 3.6 Order of Operations with Rational Numbers

27. ANS:

$\frac{5}{6}$

PTS: 1   DIF: Difficult   REF: 3.6 Order of Operations with Rational Numbers

PROBLEM

28. ANS:
    a) $45.25 + 18.25 + (-31.64) + (-15.48) = 16.38$
    b) Melissa has $16.38 left.

    PTS: 1   DIF: Moderate   REF: 3.2 Adding Rational Numbers

29. ANS:

    $$-2\frac{3}{4} - (-4\frac{1}{3}) - 2\frac{5}{6}$$

    $$= -\frac{11}{4} + \frac{13}{3} - \frac{17}{6}$$

    $$= -\frac{33}{12} + \frac{52}{12} - \frac{34}{12}$$

    $$= \frac{-15}{12}$$

    $$= -1\frac{1}{4}$$

    PTS: 1   DIF: Moderate   REF: 3.3 Subtracting Rational Numbers

30. ANS:
    a) $21 \times 490.47 = 10\,299.87$
    b) $10\,524.00 - $10\,299.87 = $224.13

    PTS: 1   DIF: Moderate   REF: 3.4 Multiplying Rational Numbers

31. ANS:

    $$\left[1\frac{5}{7} \times \left(-3\frac{5}{6}\right)\right] \div \left[\left(-2\frac{1}{10}\right) \div 0\frac{7}{8}\right]$$

    $$= \left[\frac{12}{7} \times \left(-\frac{23}{6}\right)\right] \div \left[\left(-\frac{21}{10}\right) \div \frac{7}{8}\right]$$

    $$= \left[\frac{12}{7} \times \left(-\frac{23}{6}\right)\right] \div \left[\left(-\frac{21}{10}\right) \times \frac{8}{7}\right]$$

    $$= \left(-\frac{46}{7}\right) \div \left(-\frac{12}{5}\right)$$

    $$= \left(-\frac{46}{7}\right) \times \left(-\frac{5}{12}\right)$$

    $$= \frac{115}{42}$$

    PTS: 1   DIF: Easy   REF: 3.6 Order of Operations with Rational Numbers