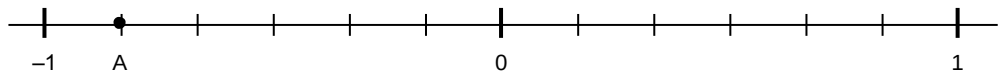
January Exam Review - Unit 3

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? *(without calculator)*



a. –0.8
b. $-\frac{5}{6}$
c. –5
d. –0.5

____ 2. Determine this sum. $\frac{14}{7} + \left(-\frac{15}{14}\right)$ *(without calculator)*

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

____ 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. $\frac{18}{7} - \left(-\frac{5}{7}\right)$ *(without calculator)*

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

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

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

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

____ 7. Determine this difference. $-\frac{5}{2} - \left(-\frac{9}{5}\right)$ *(without calculator)*

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

____ 8. Determine this difference. *(without calculator)*
$-4\frac{2}{3} - 2\frac{1}{2}$

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

____ 9. Determine this product. $\left(-\frac{3}{2}\right)\left(-\frac{5}{4}\right)$ *(without calculator)*

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

____ 10. Determine this product.
$\left(-4\frac{1}{3}\right)\left(1\frac{4}{5}\right)$ *(without calculator)*

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

____ 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. *(without calculator)*
$\left(-\frac{5}{2}\right) \div \left(\frac{2}{7}\right)$

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

____ 13. Determine this quotient. *(without calculator)*
$1\frac{1}{2} \div \left(-2\frac{3}{5}\right)$

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

____ 14. Evaluate. *(without calculator)*
$\frac{5}{6} \div \left(\frac{4}{3} + \frac{1}{6}\right)$

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

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

17. Determine this sum. $-4\frac{3}{4} + \left(-1\frac{3}{5}\right)$

18. Determine this difference. $5\frac{6}{5} - \left(-\frac{7}{5}\right)$

19. Evaluate this expression. $2\frac{11}{2} - \left(-\frac{7}{5}\right) + \left(-\frac{13}{4}\right)$

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. $1\dot{\frac{7}{8}} \times 2\dot{\frac{2}{5}} - 1\dot{\frac{3}{4}}$

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

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

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