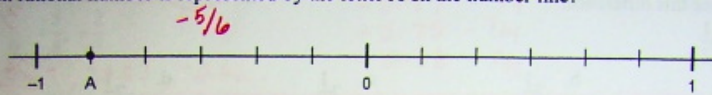


January Exam 2013 Review - Unit 3

Multiple Choice

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

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



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

- A 2. Determine this sum.

$$\frac{14x^2}{7x^2} + \left(-\frac{15}{14}\right)$$

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

$$\frac{28}{14} + \left(-\frac{15}{14}\right) = \frac{13}{14}$$

- D 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

- D 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

- A 5. Determine this difference.

$$\frac{18}{7} - \left(\frac{5}{7}\right)$$

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

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

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

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

B 7. Determine this difference.

$-\frac{25}{10} + \frac{18}{10}$
 $-\frac{7}{10}$

$-\frac{5x^5}{2x^5} \left(-\frac{9}{5} \right)^{x^2}$

8. Determine this difference.
 a. $\frac{43}{10}$ b. $-\frac{7}{10}$ c. $\frac{7}{10}$ d. $\frac{43}{10}$

9. Determine this product.
 a. $-\frac{11}{4}$ b. $-\frac{15}{8}$ c. $\frac{15}{8}$ d. $\frac{11}{4}$

10. Determine this product.
 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. $-\$131.03$

Handwritten work:
 #8: $-\frac{14x^2}{3x^2} - \frac{5x^3}{2x^3} = -\frac{28}{6} - \frac{15}{6} = -\frac{43}{6} = -7\frac{1}{6}$
 #10: $\left(-\frac{13}{3}\right)\left(\frac{9}{5}\right) = -\frac{117}{15} = -7\frac{12}{15}$ reduce. $\rightarrow -7\frac{4}{5}$

$\left(-\frac{4}{3}\right)\left(\frac{1}{5}\right)$
 a. $7\frac{4}{5}$ b. $2\frac{8}{15}$ c. $-2\frac{8}{15}$ d. $-7\frac{4}{5}$

B 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. $-\$131.03$

C 12. Determine this quotient. $-\frac{5}{2} \times \frac{7}{2} = -\frac{35}{4}$
 $\left(-\frac{5}{2}\right) \div \left(\frac{2}{7}\right)$
 a. $\frac{7}{5}$ b. $\frac{4}{35}$ **c.** $-\frac{35}{4}$ d. $-\frac{5}{7}$

B 13. Determine this quotient. $\frac{3}{2} \div -\frac{13}{5}$
 $1\frac{1}{2} \div \left(-2\frac{3}{5}\right)$
 a. $-1\frac{11}{15}$ **b.** $-\frac{15}{26}$ c. $-\frac{10}{39}$ d. $-3\frac{9}{10}$

C 14. Evaluate. $\frac{5}{6} \div \left(\frac{4}{3} + \frac{1}{6}\right)$
 $\frac{5}{6} \div \left(\frac{8}{6} + \frac{1}{6}\right)$
 $\frac{5}{6} \div \left(\frac{9}{6}\right)$
 $\frac{5}{6} \times \frac{6}{9}$
 $\frac{30}{54} = \frac{5}{9}$
 a. $\frac{25}{54}$ b. $\frac{8}{15}$ **c.** $\frac{5}{9}$ d. $\frac{19}{24}$

A 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.
 $A = 1298 - 95(13)$
 $= 1298 - 1235$
 $= 63$

Handwritten notes:
 $-\frac{117}{15}$
 $-7\frac{12}{15}$ reduce
 $-7\frac{4}{5}$

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.

$-\frac{3}{4}, -\frac{7}{9}, -\frac{5}{6}, -\frac{2}{3}$
 $-0.75, -0.77..., -0.8\bar{3}, -0.66...$
 $-0.83 \quad -\frac{5}{6}$
 $-0.77 \quad -\frac{7}{9}$
 $-0.75 \quad -\frac{3}{4}$
 $-0.66 \quad -\frac{2}{3}$

17. Determine this sum.

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

$-\frac{19}{4} + -\frac{8}{5}$
 $-\frac{95}{20} + -\frac{32}{20}$

$(\#18) \frac{6}{5} + \frac{7}{5}$
 $\frac{13}{5}$
 $2\frac{3}{5}$

$\frac{11}{2} + \frac{13}{4}$
 $\frac{110}{20} + \frac{65}{20}$
 $\frac{175}{20}$
 $8\frac{7}{4}$

18. Determine this difference.

$\frac{6}{5} - (-\frac{7}{5})$

19. Evaluate this expression.

$\frac{11}{2} - (-\frac{7}{5}) + (-\frac{13}{4})$

20. Determine this product.

19. Evaluate this expression.
 $\frac{11}{2} - \left(-\frac{7}{5}\right) + \left(-\frac{13}{4}\right)$ $6 \frac{7}{20}$

20. Determine this product. $\left(\frac{3}{2}\right)\left(-3\frac{2}{3}\right)$ $\frac{73}{20}$
 $3 \frac{13}{20}$

21. Determine this product. $\left(\frac{3}{2}\right)\left(-\frac{3}{2}\right)\left(-\frac{5}{7}\right)$ #21 $\left(\frac{3}{2}\right)\left(-\frac{3}{2}\right)\left(-\frac{5}{7}\right)$
 $-\frac{77}{6}$ $\frac{45}{28}$ $\left(-\frac{4}{3}\right) \div \left(-\frac{5}{3}\right)$

22. Determine this quotient. $\left(-\frac{4}{3}\right) \div \left(-\frac{5}{3}\right)$ $-\frac{4}{3} \times \frac{-3}{5}$
 $1 \frac{17}{28}$ $+\frac{12}{15}$
 $\frac{4}{5}$

23. Determine this quotient. $\left(-8\frac{2}{5}\right) \div \left(-1\frac{4}{5}\right)$ #23 $-42 \div -9$

24. Evaluate. $\frac{2}{3} - \left(-\frac{7}{12}\right)\left(-\frac{4}{21}\right)$ (24) $\frac{2}{3} - \left(-\frac{7}{12}\right)\left(-\frac{4}{21}\right)$
 $-42 \times -\frac{5}{9}$ $\frac{2 \times 14}{3 \times 21} = \frac{28}{252}$ (25) $\frac{15}{8} \times \frac{12}{5} - \frac{7}{4}$

25. Evaluate. $\frac{7}{8} \times 2\frac{2}{5} - 1\frac{3}{4}$ $\frac{210}{48}$ $\frac{168}{252} - \frac{28}{252}$ $\frac{180}{40} - \frac{7}{4}$
 $4 \frac{30}{48}$ $\frac{140}{252}$ $\frac{18}{4} - \frac{7}{4}$
 $4 \frac{5}{8}$ $\frac{5}{9}$ $\frac{11}{4}$

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

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

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?
 a) $45.25 + 18.25 - 31.64 - 15.48$

29. Evaluate this expression. Show your work.
 $-2\frac{3}{4} - (-4\frac{1}{3}) - 2\frac{5}{6}$
 b) 16.38

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?

30. A fishing resort has 21 cabins, all of which need to be repainted.
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 How much money will be left in the budget after all the cabins are painted?

31. Evaluate. Show your work.

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

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

$$-\frac{46}{7} \div \left[\frac{3}{10} \times \frac{8}{1} \right]$$

$$-\frac{46}{7} \div -\frac{12}{5}$$

$$-\frac{46}{7} \times -\frac{5}{12}$$

$$+\frac{115}{42}$$

(29) $-2\frac{3}{4} - (-4\frac{1}{3}) - 2\frac{5}{6}$ (30)

$$-\frac{11}{4} - \left(-\frac{13}{3} \right) - \frac{17}{6}$$

$$-\frac{11x^3}{4x^3} + \frac{13x^4}{3x^4} - \frac{17x^2}{6x^2}$$

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

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

a) $21 \times \$490.47$