

- (a) $\frac{13}{14}$ $-\frac{1}{14}$
- 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, the 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 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

- B 7. Determine this difference.

$$-1\frac{2}{3} + 5$$

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

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

8. Determine this difference.
 a. $\frac{43}{10}$ b. $-\frac{7}{10}$ c. $\frac{7}{10}$ d. $\frac{43}{10}$ (#6)

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. $-7\frac{4}{5}$ (#10)

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 for #8: $-\frac{14x^2}{3x^2} - \frac{5x^3}{2x^3}$

Handwritten work for #9: $-\frac{28}{6} - \frac{15}{6} = -\frac{43}{6} = -7\frac{1}{6}$

Handwritten work for #10: $\left(-\frac{13}{3}\right)\left(\frac{9}{5}\right) = -\frac{117}{5} = -23\frac{2}{5}$

Handwritten work for #11: $-7\frac{12}{15} = -7\frac{4}{5}$

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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. $\frac{5}{7}$

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

14. Evaluate. $\frac{5}{6} \div \left(\frac{4}{3} + \frac{1}{6}\right)$
 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.

$$A = 1298 - 95(13)$$

$$= 1298 - 1235$$

$$= 63$$

Handwritten notes and calculations on the page include:
 - $7\frac{4}{5}$ (top left)
 - 15 (top center)
 - 115 (top right)
 - $-7\frac{4}{5}$ (right side)
 - $\frac{3}{2} \times -\frac{5}{13} = \frac{-15}{26}$ (middle right)
 - $\frac{5}{6} \div \left(\frac{8}{6} + \frac{1}{6}\right)$
 $\frac{5}{6} \div \left(\frac{9}{6}\right)$
 $\frac{5}{6} \times \frac{6}{9}$
 $\frac{30}{54} = \frac{5}{9}$ (bottom right)

- Determine the amount of money remaining in her account after 13 weeks.
 a. \$63 b. \$1235 c. \$1216 d. \$1190

ort Answer

16. Order these numbers from least to greatest.

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

$$\begin{array}{l} -0.83 \quad -\frac{5}{6} \\ -0.77 \quad -\frac{7}{9} \\ -0.75 \quad -\frac{3}{4} \\ -0.66 \quad -\frac{2}{3} \end{array}$$

$-0.75, -0.77..., -0.8\bar{3}, -0.66...$

17. Determine this sum.

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

#17 $-\frac{19 \cdot 5}{4 \cdot 5} + \frac{-8 \cdot 4}{5 \cdot 4}$

#18 $\frac{6(-7)}{5+5}$

#19 $\frac{11(-7)}{2 \cdot 10} + \frac{(-13)}{4 \cdot 5}$

18. Determine this difference.

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

#17 $-\frac{95}{20} + \frac{-32}{20}$

$\frac{13}{5}$

$\frac{110}{20} + \frac{28}{20} - \frac{65}{20}$

19. Evaluate this expression.

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

$\frac{127}{20}$
 $6\frac{7}{20}$

$\frac{73}{20}$

20. Determine this product.

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

#20

$\left(\frac{7}{2}\right)\left(-\frac{11}{3}\right)$

#21 $(3)(-3)(-\frac{5}{2})$

#22 $(-4) \div (-5)$

$3\frac{13}{20}$

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

#20 $\left(\frac{7}{2}\right)\left(-\frac{11}{3}\right) = -\frac{77}{6}$

#21 $\left(\frac{3}{2}\right)\left(-\frac{3}{2}\right)\left(-\frac{5}{7}\right) = \frac{45}{28}$

#22 $\left(-\frac{4}{3}\right) \div \left(-\frac{5}{3}\right) = -\frac{4}{3} \times \frac{-3}{5} = \frac{+12}{15} = \frac{4}{5}$

#23 $\left(-8\frac{2}{5}\right) \div \left(-1\frac{4}{5}\right) = \frac{-42}{5} \div \frac{-9}{5} = \frac{-42}{5} \times \frac{-5}{9} = \frac{210}{45} = 4\frac{30}{45} = 4\frac{2}{3}$

(24) $\frac{2}{3} - \left(-\frac{7}{12}\right)\left(-\frac{4}{21}\right) = \frac{2}{3} - \frac{28}{252} = \frac{168}{252} - \frac{28}{252} = \frac{140}{252} = \frac{5}{9}$

(25) $1\frac{7}{8} \times 2\frac{2}{5} - 1\frac{3}{4} = \frac{15}{8} \times \frac{12}{5} - \frac{7}{4} = \frac{180}{40} - \frac{7}{4} = \frac{18}{4} - \frac{7}{4} = \frac{11}{4}$

(26) $\left[\frac{1}{3} + \frac{3}{5}\right] \div \left[\left(-\frac{8}{9}\right) \times \frac{12}{25}\right]$

$\left[\frac{5}{15} + \frac{9}{15}\right] \div \left[-\frac{4}{15}\right]$

$\left[\frac{14}{15}\right] \times \frac{-15}{4} = -\frac{7}{2}$

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

$\frac{-10}{3} \times \frac{-9}{4} = +\frac{5}{6}$

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.

- Write an addition statement to represent Melissa's income and expenditure.
- 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.

- Write a multiplication statement with rational numbers to determine the cost of painting the cabins.
- The resort has a budget of \$10 524.00. How much money will be left in the budget after all the cabins are painted?

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How much money will be left in the budget after all the cabins are painted?

31. Evaluate. Show your work.

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

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

$$-\frac{46}{7} \div \left[\frac{-21}{10} \times \frac{8}{7} \right]$$

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

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

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

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

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

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

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

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

$$\textcircled{30} \text{ a) } 21 \times \$490.47$$