

Solution to Chapter 4 Form C. Correct answers are boxed.

- Perform the operation. $\frac{4}{3} \div (-\frac{8}{11})$
 a. $-\frac{6}{11}$ **b. $-\frac{11}{6}$** c. $-\frac{32}{33}$ d. $-\frac{33}{32}$
- Perform the operation. $-\frac{7}{10} - \frac{4}{5}$
 a. $-\frac{11}{15}$ b. $-\frac{1}{10}$ **c. $-\frac{3}{2}$** d. $\frac{14}{25}$
- Simplify the fraction to the lowest terms. $\frac{-9x^2}{12x} = -\frac{3}{4}x$
 a. $-\frac{3x}{4}$ **b. $-\frac{3}{4x}$** c. $-\frac{9x}{12}$ d. $-\frac{9}{12x}$
- Simplify the complex fraction. $\frac{2-\frac{1}{2}}{\frac{3}{4}+\frac{1}{3}}$
 a. $\frac{9}{14}$ b. $\frac{7}{2}$ **c. $\frac{18}{13}$** d. $\frac{13}{6}$
- Perform the operation. $-\frac{4d}{25} \cdot \frac{10d}{64}$
 a. $-\frac{d}{80}$ b. $-\frac{2d^2}{80}$ c. $-\frac{d}{40}$ **d. $-\frac{d^2}{40}$**
- Perform the operation. Write the answer as a mixed number. $3\frac{2}{3} + 5\frac{3}{4} = \frac{113}{12}$
 a. $8\frac{5}{7}$ b. $9\frac{5}{7}$ c. $8\frac{5}{12}$ **d. $9\frac{5}{12}$**
- Perform the operation. $\frac{5}{2} \div (-6) = -\frac{5}{12}$
 a. -15 **b. $-\frac{5}{12}$** c. $\frac{5}{12}$ d. 15
- Perform the operation. $(-\frac{3}{2})^3 = -\frac{27}{8}$
 a. $\frac{9}{6}$ b. $-\frac{9}{6}$ **c. $-\frac{27}{8}$** d. $\frac{27}{8}$
- Solve the equation. $\frac{5x}{3} - 4 = -6$
 a. $x = -6$ **b. $x = -\frac{6}{5}$** c. $x = -\frac{14}{5}$ d. $x = -\frac{22}{5}$

$$\begin{aligned} \frac{5x}{3} - 4 &= -6 \\ \frac{5x}{3} - 4 + 4 &= -6 + 4 \\ \frac{5x}{3} &= -2 \\ \frac{3}{5} \cdot \frac{5x}{3} &= -2 \cdot \frac{3}{5} \\ x &= -\frac{6}{5} \end{aligned}$$

10. Two-thirds of students in a College Algebra course passed. If there are 48 students in the course, how many students did not pass?

- a. 16** b. 48 c. 32 d. 12

Method I:

$\frac{2}{3}$ of 48 passed the test, that is $\frac{2}{3} \cdot 48 = 2 \cdot 16 = 32$ passed.

The number of students who did not pass is $48 - 32 = 16$.

Method II:

$\frac{2}{3}$ of 48 passed the test, that is to say, $\frac{1}{3}$ of 48 did not pass the test.
That is, $\frac{1}{3} \cdot 48 = 16$ did not pass the test.

11. Simplify the complex fraction. $\frac{\frac{x}{12}}{\frac{15}{3x}}$

- a. $\frac{5}{12}$ b. $\frac{12}{5}$ c. $\frac{x^2}{60}$ d. $\frac{60}{x^2}$

12. Express the fraction as a mixed number of a whole number. $-\frac{71}{4}$

- a. $17\frac{1}{4}$ b. $-17\frac{3}{4}$ c. $-7\frac{1}{4}$ d. $-16\frac{3}{4}$

13. Solve the equation. $2y + \frac{1}{3} = -\frac{1}{3}$

- a. $-\frac{1}{3}$ b. $-\frac{4}{3}$ c. 0 d. $-\frac{1}{6}$

14. Evaluate the expression. $(\frac{3}{7} \cdot 2\frac{1}{3}) \div (\frac{2}{3})^2$

$$\begin{aligned} & \left(\frac{3}{7} \cdot 2\frac{1}{3}\right) \div \left(\frac{2}{3}\right)^2 \\ & = \left(\frac{3}{7} \cdot \frac{7}{3}\right) \div \left(\frac{2}{3}\right)^2 \\ & = 1 \div \frac{4}{9} \\ & = 1 \cdot \frac{9}{4} = \frac{9}{4} \end{aligned}$$

- a. $\frac{3}{2}$ b. $\frac{9}{4}$ c. $\frac{4}{9}$ d. $\frac{2}{3}$

15. Perform the operation. $\frac{2x}{3} \div \frac{4x}{9y}$

- a. $\frac{9x}{6}$ b. $\frac{8x^2}{27y}$ c. $\frac{3y}{2}$ d. $\frac{2}{3y}$

16. Perform the operation. Write the answer in a mixed number. $-3\frac{3}{4} - 2\frac{7}{8}$

- a. $-5\frac{5}{8}$ b. $-\frac{7}{8}$ c. $-6\frac{5}{8}$ d. $-6\frac{7}{8}$

17. Solve the equation. $\frac{2x}{5} - 4 = \frac{4x}{5} + 7$

- a. $x = \frac{11}{2}$ b. $x = -\frac{55}{6}$ c. $x = -\frac{22}{5}$ d. $x = -\frac{55}{2}$

$$\frac{2x}{5} - \frac{4x}{5} = 7 + 4$$

$$\frac{-2x}{5} = 11$$

$$\frac{-2x}{5} \cdot \left(-\frac{5}{2}\right) = 11 \cdot \left(-\frac{5}{2}\right)$$

$$x = -\frac{55}{2}$$

18. Perform the operation. $\frac{x}{7} - \frac{5}{6}$

- a. $\frac{x-5}{1}$ b. $\frac{6x-5}{42}$ c. $\frac{x-5}{42}$ d. $\frac{6x-35}{42}$

19. Estimate the point on the graph.

20. Perform the operation. $-\frac{4cd}{5c^3} \cdot \frac{30c}{2d^4}$

- a. $-\frac{12}{cd^3}$ b. $-\frac{12c}{d^3}$ c. $-\frac{12}{c^2d^3}$ d. $-12c^2d^3$

21. Solve the equation. $\frac{2}{3}x - \frac{1}{2} = \frac{1}{4}x - 1$

- a. 1 b. $-\frac{6}{5}$ c. $-\frac{18}{5}$ d. $\frac{5}{6}$

$$\frac{2}{3}x - \frac{1}{4}x = -1 + \frac{1}{2}$$

$$\frac{2}{3}x - \frac{1}{4}x = -\frac{1}{2}$$

$$\frac{8}{12}x - \frac{3}{12}x = -\frac{1}{2}$$

$$\frac{5}{12}x = -\frac{1}{2}$$

$$\frac{12}{5} \cdot \frac{5}{12}x = \frac{12}{5} \cdot \left(-\frac{1}{2}\right)$$

$$x = -\frac{12}{5} \cdot \frac{1}{2} = -\frac{6}{5}$$

$$x = -\frac{6}{5}$$

22. Evaluate the expression. $a^2 - 2ab$ for $a = -\frac{1}{3}$ and $b = \frac{2}{3}$

a. $\frac{11}{18}$ b. $-\frac{1}{3}$ c. $\frac{8}{9}$ d. $\frac{5}{9}$

$$\left(-\frac{1}{3}\right)^2 - 2\left(-\frac{1}{3}\right)\frac{2}{3} = \frac{1}{9} + 2 \cdot \frac{1}{3} \cdot \frac{2}{3} = \frac{1}{9} + \frac{4}{9} = \frac{5}{9}$$

23. Perform the operation. $2\frac{1}{3} \cdot (-3\frac{9}{5})$

a. $-\frac{35}{72}$ b. $-6\frac{3}{5}$ c. $-11\frac{1}{5}$ d. $-2\frac{7}{5}$

24. Express the mixed number as an improper fraction. $-5\frac{4}{7}$

a. $-\frac{27}{7}$ b. $-\frac{39}{7}$ c. $-\frac{33}{7}$ d. $-\frac{48}{7}$

25. Solve the equation. $\frac{8}{5}h = -\frac{4}{25}$

a. $-\frac{2}{5}$ b. -10 c. $-\frac{1}{10}$ d. $-\frac{5}{2}$

$$\frac{5}{8} \cdot \frac{8}{5}h = \frac{5}{8} \cdot \left(-\frac{4}{25}\right)$$

$$h = -\frac{5}{8} \cdot \frac{4}{25} = -\frac{1}{2} \cdot \frac{1}{5} = -\frac{1}{10}$$

$$h = -\frac{1}{10}$$