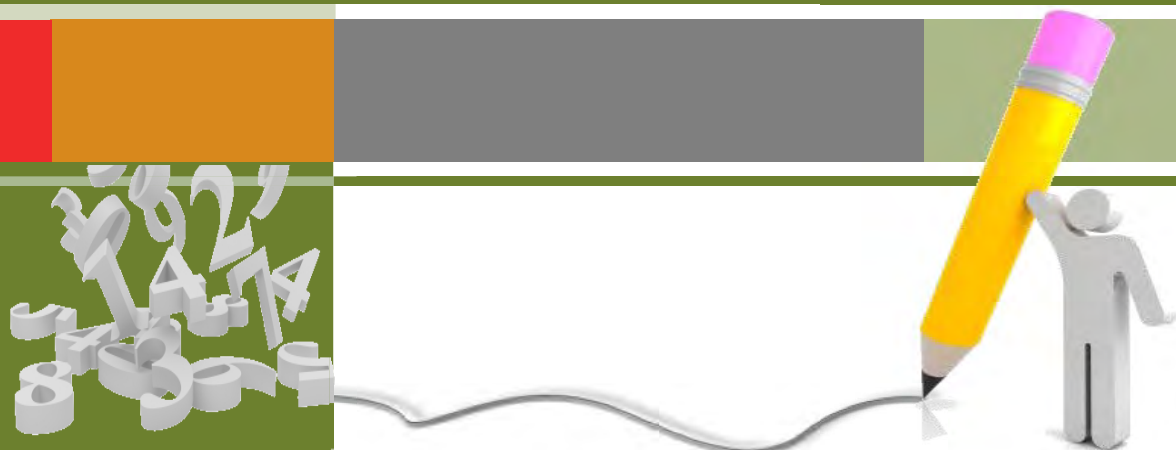


# NUMERACY:

## The Basics Workbook



### Set G: Operations with Mixed Fractions 1

Companion Workbook to Numeracy: The Basics Video Series

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## INTRODUCTION

### What is Numeracy: The Basics Workbook?

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This workbook is intended to accompany Workplace Education Manitoba's (WEM) Numeracy: The Basics Video Series, a set of 50 videos that explain essential numeracy concepts.

The refresher videos cover 25 critical numeracy topics, each broken into concept and practice.

The video series and accompanying downloadable workbooks can be found on the WEM website at [http://www.wem.mb.ca/learning\\_on\\_demand.aspx](http://www.wem.mb.ca/learning_on_demand.aspx)

These Numeracy: The Basics workbooks provide an opportunity for additional skill-building practice.

### Numeracy: The Basics topics are:

- Order of Operations 1
- Order of Operations 2
- Adding & Subtracting Fractions 1
- Adding & Subtracting Fractions 2
- Multiplying & Dividing Fractions
- Mixed & Improper Fractions
- Operations with Mixed Fractions 1
- Operations with Mixed Fractions 2
- Operations with Mixed Fractions 3
- Adding & Subtracting Decimals
- Multiplying Decimals
- Dividing Decimals
- Order of Operations & Decimals
- Decimals, Fractions & Percent 1
- Decimals, Fractions & Percent 2
- Imperial Conversions
- Metric Conversions
- Metric and Imperial Conversions
- Geometry 1 – Perimeter
- Geometry 2 – Area
- Geometry 3- Volume
- Solving Equations 1
- Solving Equations 2
- Ratio & Proportion
- Averages



## OPERATIONS WITH MIXED FRACTIONS 1

This workbook contains five skill-building practice sections. Solutions can be found at the end of the workbook.

### Practice Section A

Calculate the following. Express your answer as a mixed fraction in lowest terms.

1.  $1\frac{1}{2} + \frac{1}{2} = \underline{\hspace{2cm}}$

2.  $1\frac{1}{4} + \frac{2}{4} = \underline{\hspace{2cm}}$

3.  $1\frac{1}{8} + \frac{3}{8} = \underline{\hspace{2cm}}$

4.  $\frac{5}{8} + 2\frac{1}{8} = \underline{\hspace{2cm}}$

5.  $1\frac{7}{8} + 2\frac{3}{4} = \underline{\hspace{2cm}}$

6.  $1\frac{1}{2} - \frac{3}{8} = \underline{\hspace{2cm}}$

7.  $2\frac{1}{8} - 1\frac{7}{8} = \underline{\hspace{2cm}}$

8.  $1\frac{5}{8} + 1\frac{3}{4} = \underline{\hspace{2cm}}$

9.  $1\frac{3}{8} - 1\frac{1}{4} = \underline{\hspace{2cm}}$

10.  $2\frac{1}{2} - 1\frac{5}{8} = \underline{\hspace{2cm}}$

11.  $2\frac{1}{8} + 1\frac{1}{2} = \underline{\hspace{2cm}}$



12.  $1\frac{3}{4} + \frac{9}{16} = \underline{\hspace{2cm}}$

13.  $2 - 1\frac{3}{8} = \underline{\hspace{2cm}}$

14.  $3 + 2\frac{1}{4} = \underline{\hspace{2cm}}$

15.  $4 - 1\frac{1}{4} + \frac{1}{2} = \underline{\hspace{2cm}}$

**Practice Section B**

Calculate the following. Express your answer as a mixed fraction in lowest terms.

1.  $3\frac{1}{4} + 2\frac{7}{8} = \underline{\hspace{2cm}}$

2.  $2\frac{3}{4} - 1\frac{5}{16} = \underline{\hspace{2cm}}$

3.  $2\frac{3}{8} - 1\frac{1}{2} = \underline{\hspace{2cm}}$

4.  $4\frac{1}{2} - 1\frac{7}{8} = \underline{\hspace{2cm}}$

5.  $3\frac{1}{16} - 1\frac{3}{4} = \underline{\hspace{2cm}}$

6.  $4\frac{13}{16} - 2\frac{1}{4} = \underline{\hspace{2cm}}$

7.  $3\frac{5}{16} + 4\frac{1}{2} = \underline{\hspace{2cm}}$

8.  $5\frac{3}{4} - 2\frac{9}{16} = \underline{\hspace{2cm}}$



9.  $4\frac{3}{4} + 3\frac{7}{8} = \underline{\hspace{2cm}}$

10.  $4\frac{5}{16} - 2\frac{29}{32} = \underline{\hspace{2cm}}$

11.  $3\frac{3}{8} - \frac{7}{16} + 2 = \underline{\hspace{2cm}}$

12.  $2\frac{5}{8} - 1\frac{3}{4} + \frac{5}{16} = \underline{\hspace{2cm}}$

13.  $2\frac{3}{16} - \frac{7}{8} + 3\frac{1}{2} = \underline{\hspace{2cm}}$

14.  $3 - 2\frac{1}{8} + 1\frac{7}{16} = \underline{\hspace{2cm}}$

15.  $\frac{3}{32} + 5\frac{7}{8} - 2\frac{1}{4} = \underline{\hspace{2cm}}$

**Practice Section C**

Calculate the following. Express your answer in lowest terms.

1.  $\frac{3}{8} + 4\frac{3}{4} - 2\frac{1}{2} = \underline{\hspace{2cm}}$

2.  $4\frac{3}{4} + 2\frac{7}{8} - 3\frac{9}{16} = \underline{\hspace{2cm}}$

3.  $6\frac{1}{4} - 3\frac{5}{16} - 2\frac{19}{32} = \underline{\hspace{2cm}}$

4.  $7 - 2\frac{7}{8} + 3\frac{1}{4} - 1\frac{11}{16} = \underline{\hspace{2cm}}$

5.  $4\frac{3}{4} - 2\frac{7}{8} + 3\frac{1}{2} + 2\frac{7}{16} + 3 = \underline{\hspace{2cm}}$

**Practice Section D**

In this section, solutions for the practice questions contain commonly-made errors. For each question, circle the error(s) and give a correct solution.

1. Calculate the answer by performing the correct order of operations.  
Express your answer as a mixed fraction in lowest terms.

$$5 + 2\frac{5}{8} - 3\frac{3}{4} - 1\frac{11}{16}$$

Solution:

$$\begin{aligned} & 5 + 2\frac{5}{8} - 3\frac{3}{4} - 1\frac{11}{16} \\ &= \frac{5}{1} + \frac{8 \times 2 + 5}{8} - \frac{4 \times 3 + 3}{4} - \frac{16 \times 1 + 11}{16} \\ &= \frac{5}{1} \left( \frac{16}{16} \right) + \frac{19}{8} \left( \frac{2}{2} \right) - \frac{15}{4} \left( \frac{4}{4} \right) - \frac{27}{16} \\ &= \frac{80}{16} + \frac{38}{16} - \frac{60}{16} - \frac{27}{16} \\ &= \frac{30}{16} = 2\frac{2}{16} = 2\frac{1}{8} \end{aligned}$$

**Practice Section E**

Challenge Question. If you can do this one, then you get an A<sup>+</sup>. ☺

Calculate the answer by following the correct order of operations. Give your answer as a mixed fraction in lowest terms.

$$5\frac{3}{8} - \left( 2\frac{3}{4} - 3\frac{13}{16} \right) - \left( 2\frac{7}{32} - 1\frac{7}{8} \right)$$

= \_\_\_\_\_



# SOLUTIONS

## Set G

### Operations with Mixed Fractions 1



**OPERATIONS WITH MIXED FRACTIONS 1****Practice Section A**

1. Solution:

$$\begin{aligned} & 1\frac{1}{2} + \frac{1}{2} \\ &= \frac{2 \times 1 + 1}{2} + \frac{1}{2} \\ &= \frac{3 + 1}{2} \\ &= \frac{4}{2} \\ &= 2 \end{aligned}$$

2. Solution:

$$\begin{aligned} & 1\frac{1}{4} + \frac{2}{4} \\ &= \frac{4 \times 1 + 1}{4} + \frac{2}{4} \\ &= \frac{5 + 2}{4} \\ &= \frac{7}{4} = 1\frac{3}{4} \end{aligned}$$

3. Solution:

$$\begin{aligned} & 1\frac{1}{8} + \frac{3}{8} \\ &= \frac{8 \times 1 + 1}{8} + \frac{3}{8} \\ &= \frac{9 + 3}{8} \\ &= \frac{12}{8} \\ &= \frac{3}{2} = 1\frac{1}{2} \end{aligned}$$

4. Solution:

$$\begin{aligned} & \frac{5}{8} + 2\frac{1}{8} \\ &= \frac{5}{8} + \frac{8 \times 2 + 1}{8} \\ &= \frac{5 + 17}{8} \\ &= \frac{22}{8} \\ &= 2\frac{6}{8} \\ &= 2\frac{3}{4} \end{aligned}$$

5. Solution:

$$\begin{aligned} & 1\frac{7}{8} + 2\frac{3}{4} \\ &= \frac{8 \times 1 + 7}{8} + \frac{4 \times 2 + 3}{4} \\ &= \frac{15}{8} + \frac{11}{4} \left( \frac{2}{2} \right) \\ &= \frac{15}{8} + \frac{22}{8} \\ &= \frac{37}{8} = 4\frac{5}{8} \end{aligned}$$



6. Solution:

$$\begin{aligned} & 1\frac{1}{2} - \frac{3}{8} \\ &= \frac{2 \times 1 + 1}{2} - \frac{3}{8} \\ &= \frac{3\left(\frac{4}{4}\right) - \frac{3}{8}}{8} \\ &= \frac{12}{8} - \frac{3}{8} \\ &= \frac{9}{8} = 1\frac{1}{8} \end{aligned}$$

7. Solution:

$$\begin{aligned} & 2\frac{1}{8} - 1\frac{7}{8} \\ &= \frac{8 \times 2 + 1}{8} - \frac{8 \times 1 + 7}{8} \\ &= \frac{17}{8} - \frac{15}{8} \\ &= \frac{2}{8} \\ &= \frac{1}{4} \end{aligned}$$

8. Solution:

$$\begin{aligned} & 1\frac{5}{8} + 1\frac{3}{4} \\ &= \frac{8 \times 1 + 5}{8} + \frac{4 \times 1 + 3}{4} \\ &= \frac{13}{8} + \frac{7\left(\frac{2}{2}\right)}{4} \\ &= \frac{13}{8} + \frac{14}{8} \\ &= \frac{27}{8} = 3\frac{3}{8} \end{aligned}$$

9. Solution:

$$\begin{aligned} & 1\frac{3}{8} - 1\frac{1}{4} \\ &= \frac{8 \times 1 + 3}{8} - \frac{4 \times 1 + 1}{4} \\ &= \frac{11}{8} - \frac{5\left(\frac{2}{2}\right)}{4} \\ &= \frac{11}{8} - \frac{10}{8} \\ &= \frac{1}{8} \end{aligned}$$

10. Solution:

$$\begin{aligned} & 2\frac{1}{2} - 1\frac{5}{8} \\ &= \frac{2 \times 2 + 1}{2} - \frac{8 \times 1 + 5}{8} \\ &= \frac{5\left(\frac{4}{4}\right) - \frac{13}{8}}{8} \\ &= \frac{20}{8} - \frac{13}{8} \\ &= \frac{7}{8} \end{aligned}$$

11. Solution:

$$\begin{aligned} & 2\frac{1}{8} + 1\frac{1}{2} \\ &= \frac{8 \times 2 + 1}{8} + \frac{2 \times 1 + 1}{2} \\ &= \frac{17}{8} + \frac{3\left(\frac{4}{4}\right)}{2} \\ &= \frac{17}{8} + \frac{12}{8} \\ &= \frac{29}{8} = 3\frac{5}{8} \end{aligned}$$



12. Solution:

$$\begin{aligned} & 1\frac{3}{4} + \frac{9}{16} \\ &= \frac{4 \times 1 + 3}{4} + \frac{9}{16} \\ &= \frac{7\left(\frac{4}{4}\right) + \frac{9}{16}}{4} \\ &= \frac{28}{16} + \frac{9}{16} \\ &= \frac{37}{16} = 2\frac{5}{16} \end{aligned}$$

13. Solution:

$$\begin{aligned} & 2 - 1\frac{3}{8} \\ &= 2 - \frac{8 \times 1 + 3}{8} \\ &= \frac{2\left(\frac{8}{8}\right) - \frac{11}{8}}{1} \\ &= \frac{16}{8} - \frac{11}{8} \\ &= \frac{5}{8} \end{aligned}$$

14. Solution:

$$\begin{aligned} & 3 + 2\frac{1}{4} \\ &= 3 + \frac{4 \times 2 + 1}{4} \\ &= \frac{3\left(\frac{4}{4}\right) + \frac{9}{4}}{1} \\ &= \frac{12}{4} + \frac{9}{4} \\ &= \frac{21}{4} = 5\frac{1}{4} \end{aligned}$$

15. Solution:

$$\begin{aligned} & 4 - 1\frac{1}{4} + \frac{1}{2} \\ &= 4 - \frac{4 \times 1 + 1}{4} + \frac{1}{2} \\ &= \frac{4\left(\frac{4}{4}\right) - \frac{5}{4} + \frac{1\left(\frac{2}{2}\right)}{2}}{1} \\ &= \frac{16}{4} - \frac{5}{4} + \frac{2}{4} \\ &= \frac{13}{4} = 3\frac{1}{4} \end{aligned}$$

**Practice Section B**

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**1.** Solution:

$$\begin{aligned} & 3\frac{1}{4} + 2\frac{7}{8} \\ &= \frac{4 \times 3 + 1}{4} + \frac{8 \times 2 + 7}{8} \\ &= \frac{13}{4} \left( \frac{2}{2} \right) + \frac{23}{8} \\ &= \frac{26}{8} + \frac{23}{8} \\ &= \frac{49}{8} = 6\frac{1}{8} \end{aligned}$$

**2.** Solution:

$$\begin{aligned} & 2\frac{3}{4} - 1\frac{5}{16} \\ &= \frac{4 \times 2 + 3}{4} - \frac{16 \times 1 + 5}{16} \\ &= \frac{11}{4} \left( \frac{4}{4} \right) - \frac{21}{16} \\ &= \frac{44}{16} - \frac{21}{16} \\ &= \frac{23}{16} = 1\frac{7}{16} \end{aligned}$$

**3.** Solution:

$$\begin{aligned} & 2\frac{3}{8} - 1\frac{1}{2} \\ &= \frac{8 \times 2 + 3}{8} - \frac{2 \times 1 + 1}{2} \\ &= \frac{19}{8} - \frac{3}{2} \left( \frac{4}{4} \right) \\ &= \frac{19}{8} - \frac{12}{8} \\ &= \frac{7}{8} \end{aligned}$$

**4.** Solution:

$$\begin{aligned} & 4\frac{1}{2} - 1\frac{7}{8} \\ &= \frac{2 \times 4 + 1}{2} - \frac{8 \times 1 + 7}{8} \\ &= \frac{9}{2} \left( \frac{4}{4} \right) - \frac{15}{8} \\ &= \frac{36}{8} - \frac{15}{8} \\ &= \frac{21}{8} = 2\frac{5}{8} \end{aligned}$$

**5.** Solution:

$$\begin{aligned} & 3\frac{1}{16} - 1\frac{3}{4} \\ &= \frac{16 \times 3 + 1}{16} - \frac{4 \times 1 + 3}{4} \\ &= \frac{49}{16} - \frac{7}{4} \left( \frac{4}{4} \right) \\ &= \frac{49}{16} - \frac{28}{16} \\ &= \frac{21}{16} = 1\frac{5}{16} \end{aligned}$$

**6.** Solution:

$$\begin{aligned} & 4\frac{13}{16} - 2\frac{1}{4} \\ &= \frac{16 \times 4 + 13}{16} - \frac{4 \times 2 + 1}{4} \\ &= \frac{77}{16} - \frac{9}{4} \left( \frac{4}{4} \right) \\ &= \frac{77}{16} - \frac{36}{16} \\ &= \frac{41}{16} = 2\frac{9}{16} \end{aligned}$$



7. Solution:

$$\begin{aligned} & 3\frac{5}{16} + 4\frac{1}{2} \\ &= \frac{16 \times 3 + 5}{16} + \frac{2 \times 4 + 1}{2} \\ &= \frac{53}{16} + \frac{9}{2} \left( \frac{8}{8} \right) \\ &= \frac{53}{16} + \frac{72}{16} \\ &= \frac{125}{16} = 7\frac{13}{16} \end{aligned}$$

8. Solution:

$$\begin{aligned} & 5\frac{3}{4} - 2\frac{9}{16} \\ &= \frac{4 \times 5 + 3}{4} - \frac{16 \times 2 + 9}{16} \\ &= \frac{23}{4} \left( \frac{4}{4} \right) - \frac{41}{16} \\ &= \frac{92}{16} - \frac{41}{16} \\ &= \frac{51}{16} = 3\frac{3}{16} \end{aligned}$$

9. Solution:

$$\begin{aligned} & 4\frac{3}{4} + 3\frac{7}{8} \\ &= \frac{4 \times 4 + 3}{4} + \frac{8 \times 3 + 7}{8} \\ &= \frac{19}{4} \left( \frac{2}{2} \right) + \frac{31}{8} \\ &= \frac{38}{8} + \frac{31}{8} \\ &= \frac{69}{8} = 8\frac{5}{8} \end{aligned}$$

10. Solution:

$$\begin{aligned} & 4\frac{5}{16} - 2\frac{29}{32} \\ &= \frac{16 \times 4 + 5}{16} - \frac{32 \times 2 + 29}{32} \\ &= \frac{69}{16} \left( \frac{2}{2} \right) - \frac{93}{32} \\ &= \frac{138}{32} - \frac{93}{32} \\ &= \frac{45}{32} = 1\frac{13}{32} \end{aligned}$$

11. Solution:

$$\begin{aligned} & 3\frac{3}{8} - \frac{7}{16} + 2 \\ &= \frac{8 \times 3 + 3}{8} - \frac{7}{16} + \frac{2}{1} \\ &= \frac{27}{8} \left( \frac{2}{2} \right) - \frac{7}{16} + \frac{2}{1} \left( \frac{16}{16} \right) \\ &= \frac{54}{16} - \frac{7}{16} + \frac{32}{16} \\ &= \frac{79}{16} = 4\frac{15}{16} \end{aligned}$$

12. Solution:

$$\begin{aligned} & 2\frac{5}{8} - 1\frac{3}{4} + \frac{5}{16} \\ &= \frac{8 \times 2 + 5}{8} - \frac{4 \times 1 + 3}{4} + \frac{5}{16} \\ &= \frac{21}{8} \left( \frac{2}{2} \right) - \frac{7}{4} \left( \frac{4}{4} \right) + \frac{5}{16} \\ &= \frac{42}{16} - \frac{28}{16} + \frac{5}{16} \\ &= \frac{19}{16} = 1\frac{3}{16} \end{aligned}$$



13. Solution:

$$\begin{aligned} & 2\frac{3}{16} - \frac{7}{8} + 3\frac{1}{2} \\ &= \frac{16 \times 2 + 3}{16} - \frac{7}{8} + \frac{2 \times 3 + 1}{4} \\ &= \frac{35}{16} - \frac{7}{8} \left(\frac{2}{2}\right) + \frac{7}{2} \left(\frac{8}{8}\right) \\ &= \frac{35}{16} - \frac{14}{16} + \frac{56}{16} \\ &= \frac{77}{16} = 4\frac{13}{16} \end{aligned}$$

14. Solution:

$$\begin{aligned} & 3 - 2\frac{1}{8} + 1\frac{7}{16} \\ &= \frac{3}{1} - \frac{8 \times 2 + 1}{8} + \frac{16 \times 1 + 7}{16} \\ &= \frac{3}{1} \left(\frac{16}{16}\right) - \frac{17}{8} \left(\frac{2}{2}\right) + \frac{23}{16} \\ &= \frac{48}{16} - \frac{34}{16} + \frac{23}{16} \\ &= \frac{37}{16} = 2\frac{5}{16} \end{aligned}$$

15. Solution:

$$\begin{aligned} & \frac{3}{32} + 5\frac{7}{8} - 2\frac{1}{4} \\ &= \frac{3}{32} + \frac{8 \times 5 + 7}{8} - \frac{4 \times 2 + 1}{4} \\ &= \frac{3}{32} + \frac{47}{8} - \frac{9}{4} \\ &= \frac{3}{32} + \frac{47}{8} \left(\frac{4}{4}\right) - \frac{9}{4} \left(\frac{8}{8}\right) \\ &= \frac{3}{32} + \frac{188}{32} - \frac{72}{32} \\ &= \frac{119}{32} = 3\frac{23}{32} \end{aligned}$$

**Practice Section C****1.** Solution:

$$\begin{aligned} & \frac{3}{8} + 4\frac{3}{4} - 2\frac{1}{2} \\ &= \frac{3}{8} + \frac{4 \times 4 + 3}{4} - \frac{2 \times 2 + 1}{2} \\ &= \frac{3}{8} + \frac{19}{4} - \frac{5}{2} \\ &= \frac{3}{8} + \frac{19}{4} \left(\frac{2}{2}\right) - \frac{5}{2} \left(\frac{4}{4}\right) \\ &= \frac{3}{8} + \frac{38}{8} - \frac{20}{8} \\ &= \frac{21}{8} = 2\frac{5}{8} \end{aligned}$$

**2.** Solution:

$$\begin{aligned} & 4\frac{3}{4} + 2\frac{7}{8} - 3\frac{9}{16} \\ &= \frac{4 \times 4 + 3}{4} + \frac{8 \times 2 + 7}{8} - \frac{16 \times 3 + 9}{16} \\ &= \frac{19}{4} + \frac{23}{8} - \frac{57}{16} \\ &= \frac{19}{4} \left(\frac{4}{4}\right) + \frac{23}{8} \left(\frac{2}{2}\right) - \frac{57}{16} \\ &= \frac{76}{16} + \frac{46}{16} - \frac{57}{16} \\ &= \frac{65}{16} = 4\frac{1}{16} \end{aligned}$$

**3.** Solution:

$$\begin{aligned} & 6\frac{1}{4} - 3\frac{5}{16} - 2\frac{19}{32} \\ &= \frac{4 \times 6 + 1}{4} - \frac{16 \times 3 + 5}{16} - \frac{32 \times 2 + 19}{32} \\ &= \frac{25}{4} \left(\frac{8}{8}\right) - \frac{53}{16} \left(\frac{2}{2}\right) - \frac{83}{32} \\ &= \frac{200}{32} - \frac{106}{32} - \frac{83}{32} \\ &= \frac{11}{32} \end{aligned}$$

**4.** Solution:

$$\begin{aligned} & 7 - 2\frac{7}{8} + 3\frac{1}{4} - 1\frac{11}{16} \\ &= \frac{7}{1} - \frac{8 \times 2 + 7}{8} + \frac{4 \times 3 + 1}{4} - \frac{16 \times 1 + 11}{16} \\ &= \frac{7}{1} \left(\frac{16}{16}\right) - \frac{23}{8} \left(\frac{2}{2}\right) + \frac{13}{4} \left(\frac{4}{4}\right) - \frac{27}{16} \\ &= \frac{112}{16} - \frac{46}{16} + \frac{52}{16} - \frac{27}{16} \\ &= \frac{91}{16} = 5\frac{11}{16} \end{aligned}$$

**5.** Solution:

$$\begin{aligned} & 4\frac{3}{4} - 2\frac{7}{8} + 3\frac{1}{2} + 2\frac{7}{16} + 3 \\ &= \frac{4 \times 4 + 3}{4} - \frac{8 \times 2 + 7}{8} + \frac{3 \times 2 + 1}{2} + \frac{16 \times 2 + 7}{16} + \frac{3}{1} \\ &= \frac{19}{4} \left(\frac{4}{4}\right) - \frac{23}{8} \left(\frac{2}{2}\right) + \frac{7}{2} \left(\frac{8}{8}\right) + \frac{39}{16} + \frac{3}{1} \left(\frac{16}{16}\right) \\ &= \frac{76}{16} - \frac{46}{16} + \frac{56}{16} + \frac{39}{16} + \frac{48}{16} \\ &= \frac{173}{16} = 10\frac{13}{16} \end{aligned}$$

**Practice Section D**

1. Solution:

One error is in line 2 where  $8 \times 2 + 5 = 19$  instead of  $8 \times 2 + 5 = 21$ .

There are also two errors on the last line:  $80 + 38 - 60 - 27 = 31$  (not 30) and the fraction  $\frac{30}{16} = 1\frac{14}{16} = 1\frac{7}{8}$ , (not  $2\frac{1}{8}$ ). The last two errors would still result in a deduction because they are independent from the error in line 2.

The correct solution is:

$$\begin{aligned} & 5 + 2\frac{5}{8} - 3\frac{3}{4} - 1\frac{11}{16} \\ &= \frac{5}{1} + \frac{8 \times 2 + 5}{8} - \frac{4 \times 3 + 3}{4} - 1\frac{16 \times 1 + 11}{16} \\ &= \frac{5}{1} \left( \frac{16}{16} \right) + \frac{21}{8} \left( \frac{2}{2} \right) - \frac{15}{4} \left( \frac{4}{4} \right) - \frac{27}{16} \\ &= \frac{80}{16} + \frac{42}{16} - \frac{60}{16} - \frac{27}{16} \\ &= \frac{35}{16} = 2\frac{3}{16} \end{aligned}$$

**Practice Section E**

Solution:

$$\begin{aligned} & 5\frac{3}{8} - \left( 2\frac{3}{4} - 3\frac{13}{16} \right) - \left( 2\frac{7}{32} - 1\frac{7}{8} \right) \\ &= \frac{43}{8} - \left( \frac{11}{4} - \frac{61}{16} \right) - \left( \frac{71}{32} - \frac{15}{8} \right) \\ &= \frac{43}{8} \left( \frac{4}{4} \right) - \left( \frac{11}{4} \left( \frac{8}{8} \right) - \frac{61}{16} \left( \frac{2}{2} \right) \right) - \left( \frac{71}{32} - \frac{15}{8} \left( \frac{4}{4} \right) \right) \\ &= \frac{172}{32} - \left( \frac{88}{32} - \frac{122}{32} \right) - \left( \frac{71}{32} - \frac{60}{32} \right) \\ &= \frac{172}{32} - \left( -\frac{34}{32} \right) - \left( \frac{11}{32} \right) \\ &= \frac{172}{32} + \frac{34}{32} - \frac{11}{32} \\ &= \frac{195}{32} = 6\frac{3}{32} \end{aligned}$$