Part A:

Jack shared some grapes with two friends. Jack ate $\frac{2}{8}$ of the grapes. His friend Sam ate $\frac{2}{8}$ of the grapes. Kelly ate $\frac{3}{8}$ of the grapes. Find out what fraction of the grapes was left.

Show all work to justify your answer.

Part B:

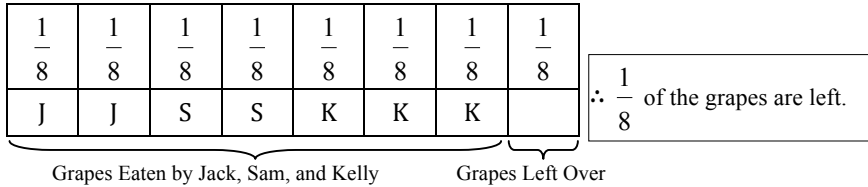Veronica already read some of her book. She has $\frac{11}{12}$ of it left, and she must read all of it. On Friday she reads $\frac{3}{12}$ more. What fraction of the book does Veronica have left to finish?

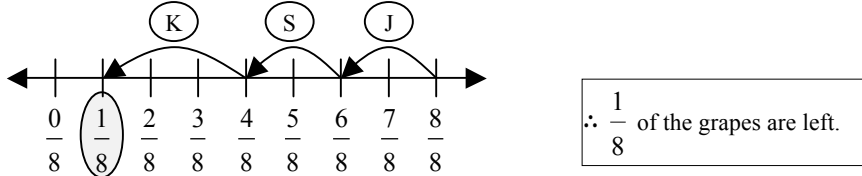Explain your thinking with work and models.

Sample Top-Score Response:

Method: Equation

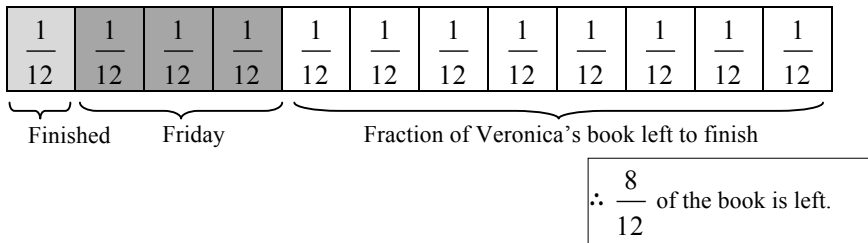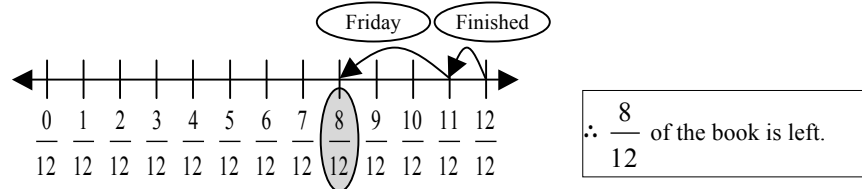*Part A*

Method: Bar Model

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
J	J	S	S	K	K	K	

$\underbrace{\qquad\qquad\qquad}_{\text{Grapes Eaten by Jack, Sam, and Kelly}}$ $\underbrace{\qquad}_{\text{Grapes Left Over}}$

$\therefore \frac{1}{8}$ of the grapes are left.

Let g = number of grapes left.

$$g = 1 - \left(\frac{2}{8} + \frac{2}{8} + \frac{3}{8} \right)$$

$$g = 1 - \frac{7}{8}$$

$$g = \frac{8}{8} - \frac{7}{8}$$

$$g = \frac{1}{8}$$

Method: Number Line

K S J

$\frac{0}{8}$ $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$ $\frac{8}{8}$

$\therefore \frac{1}{8}$ of the grapes are left.

$\therefore \frac{1}{8}$ of the grapes are left.

Part B

Method: Bar Model

$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$\underbrace{\quad}_{\text{Finished}}$ $\underbrace{\quad}_{\text{Friday}}$ $\underbrace{\qquad\qquad\qquad}_{\text{Fraction of Veronica's book left to finish}}$

$\therefore \frac{8}{12}$ of the book is left.

Method: Equation

Let p = part of book to finish.

$$p = \frac{11}{12} - \frac{3}{12}$$

$$p = \frac{11 - 3}{12}$$

$$p = \frac{8}{12}$$

$\therefore \frac{8}{12}$ of the book is left to finish.

.... *or* ....

Let p = part of book to finish.

$$p = \frac{12}{12} - \left(\frac{1}{12} + \frac{3}{12} \right)$$

Method: Number Line

Friday Finished

$\frac{0}{12}$ $\frac{1}{12}$ $\frac{2}{12}$ $\frac{3}{12}$ $\frac{4}{12}$ $\frac{5}{12}$ $\frac{6}{12}$ $\frac{7}{12}$ $\frac{8}{12}$ $\frac{9}{12}$ $\frac{10}{12}$ $\frac{11}{12}$ $\frac{12}{12}$

$\therefore \frac{8}{12}$ of the book is left.

$$p = \frac{12}{12} - \frac{1 + 3}{12}$$

$$p = \frac{12 - 4}{12}$$

$$p = \frac{8}{12}$$

$\therefore \frac{8}{12}$ of the book is left to finish.

Scoring Rubric

2 points	Demonstrates a thorough understanding of the addition and subtraction of fractions referring to a common whole. The visual models and/or equations represent the word problems accurately; answers are complete and correct.
1 point	Demonstrates a partial understanding of the addition and subtraction of fractions referring to a common whole. One of the two parts is correct; the other has minor errors in calculation.
0 points	No work is shown. Answers do not show understanding of concept, e.g., addition of denominators.

Number and Operations-Fractions **4.NF**

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

3. Understand a fraction *a/b* with *a>1* as a sum of fractions 1*/b*.
   d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.