Answer Key

GRADE 3 • MODULE 5

Fractions as Numbers on the Number Line

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Lesson 1

Problem Set

1. Answer provided; 1 fourth shaded; 1 third shaded
2. 1 third; 1 sixth; 1 fourth
3. a. 1 line, 1 half
   b. 2 lines, 1 third
   c. 3 lines, 1 fourth
4. a. Sevenths are shown; ninths are shown
   b. Answers will vary.
5. 1 half; picture drawn to show 2 halves

Exit Ticket

1. 1 fourth
2. Rectangle partitioned into thirds
3. 1 fourth

Homework

1. Answer provided; 1 fifth shaded; 1 sixth shaded
2. 1 third; 1 fourth; 1 seventh
3. Halves are shown; thirds are shown; sixths are shown
4. Lines drawn to show halves; lines drawn to show fourths; lines drawn to show eighths
5. Lines drawn to show sixths; lines drawn to show thirds
6. 1 sixth; picture drawn to show 6 equal parts
7. 6 grams

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Lesson 2

Problem Set

1. First and last strips circled
2. a. 4, 2
   b. 6, 5
   c. 7, 3
   d. 7, 0
3. 1 third; bar drawn and labeled appropriately; 1 third labeled
4. a. 1 fourth; fraction strip drawn and labeled correctly
   b. Sixths; fraction strip drawn and labeled correctly

Exit Ticket

1. Second model
2. 10, 7
3. Answers will vary, showing 4 equal parts.

Homework

1. Second and third strips circled
2. a. 2, 1
   b. 3, 1
   c. 5, 1
   d. 14, 7
3. Answers will vary.
4. a. One-eighth
   b. Five-eighths

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Lesson 3

Sprint

Side A

1.	6	12.	42	23.	60	34.	54
2.	6	13.	42	24.	54	35.	36
3.	12	14.	48	25.	24	36.	18
4.	12	15.	48	26.	48	37.	12
5.	18	16.	54	27.	18	38.	42
6.	18	17.	54	28.	42	39.	48
7.	24	18.	60	29.	36	40.	66
8.	24	19.	60	30.	60	41.	66
9.	30	20.	18	31.	30	42.	72
10.	30	21.	6	32.	24	43.	72
11.	36	22.	12	33.	6	44.	78

Side B

1.	6	12.	42	23.	54	34.	24
2.	6	13.	42	24.	18	35.	54
3.	12	14.	48	25.	48	36.	12
4.	12	15.	48	26.	24	37.	42
5.	18	16.	54	27.	42	38.	18
6.	18	17.	54	28.	30	39.	48
7.	24	18.	60	29.	36	40.	66
8.	24	19.	60	30.	30	41.	66
9.	30	20.	6	31.	60	42.	72
10.	30	21.	60	32.	6	43.	72
11.	36	22.	12	33.	36	44.	78

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Problem Set

1. Eighths; 5 eighths
   Thirds; 3 thirds
   Halves; 1 half
2. First, third, and fifth shapes circled; sentences will vary.
3. Answers will vary, fourths
4. Shapes shaded appropriately
5. Answers will vary.
6. Answers will vary, showing 5 equal parts; 1 fifth

Exit Ticket

1. 4
2. First and third shapes circled
3. 1 fourth

Homework

1. Fifths; 4 fifths
   Sixths; 3 sixths
   Halves; 0 halves
2. Answers will vary.
3. Answers will vary; 1 twelfth

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Lesson 4

Sprint

Side A

1.	12	12.	42	23.	10	34.	8
2.	18	13.	48	24.	2	35.	7
3.	24	14.	54	25.	3	36.	9
4.	30	15.	60	26.	10	37.	6
5.	6	16.	8	27.	5	38.	8
6.	2	17.	7	28.	1	39.	66
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	72
9.	1	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	84
11.	36	22.	1	33.	9	44.	14

Side B

1.	6	12.	36	23.	2	34.	7
2.	12	13.	42	24.	10	35.	8
3.	18	14.	48	25.	3	36.	9
4.	24	15.	54	26.	2	37.	6
5.	30	16.	7	27.	1	38.	7
6.	3	17.	6	28.	10	39.	66
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	72
9.	1	20.	9	31.	3	42.	12
10.	5	21.	1	32.	4	43.	78
11.	60	22.	5	33.	9	44.	13

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Problem Set

1. Answers will vary.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.
6. Answers will vary.

Exit Ticket

1. Lines drawn to show a fourth
2. Lines drawn to show a fifth
3. One-sixth

Homework

1. Lines drawn to show halves for each figure
2. Lines drawn to show fourths for each figure
3. Lines drawn to show thirds for each figure
4. Fractions matched to equivalent shape

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Lesson 5

Problem Set

1. a. 2, 1, 1 half, $\frac{1}{2}$
   b. 3, 1, 1 third, $\frac{1}{3}$
   c. 4, 1, 1 fourth, $\frac{1}{4}$
   d. 5, 1, 1 fifth, $\frac{1}{5}$
   e. 6, 1, 1 sixth, $\frac{1}{6}$
   f. 8, 1, 1 eighth, $\frac{1}{8}$
2. No; explanations will vary.
3. Lines drawn to show tenths; $\frac{1}{10}$
4. Rectangles are drawn and labeled to show $\frac{1}{10}$ and $\frac{1}{8}$; $\frac{1}{8}$ is bigger than $\frac{1}{10}$.

Exit Ticket

1. 6, 1, 1 sixth, $\frac{1}{6}$
2. $\frac{1}{7}$; $\frac{1}{2}$; $\frac{1}{9}$
3. Rectangles are drawn and labeled to show $\frac{1}{5}$ and $\frac{1}{8}$; $\frac{1}{5}$ is bigger than $\frac{1}{8}$

Homework

1. a. 2, 1, 1 half, $\frac{1}{2}$
   b. 3, 1, 1 third, $\frac{1}{3}$
   c. 10, 1, 1 tenth, $\frac{1}{10}$
   d. 5, 1, 1 fifth, $\frac{1}{5}$
   e. 4, 1, 1 fourth, $\frac{1}{4}$
2. No; explanations will vary.
3. Lines drawn to show fourths
4. Rectangles drawn and labeled to show $\frac{1}{7}$ and $\frac{1}{10}$

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Lesson 6

Sprint

Side A

1.	7	12.	42	23.	70	34.	63
2.	7	13.	49	24.	63	35.	28
3.	14	14.	56	25.	28	36.	21
4.	14	15.	56	26.	56	37.	14
5.	21	16.	63	27.	21	38.	49
6.	21	17.	63	28.	49	39.	56
7.	28	18.	70	29.	42	40.	77
8.	28	19.	70	30.	70	41.	77
9.	35	20.	21	31.	35	42.	84
10.	35	21.	7	32.	42	43.	84
11.	42	22.	14	33.	7	44.	91

Side B

1.	7	12.	42	23.	63	34.	28
2.	7	13.	49	24.	21	35.	63
3.	14	14.	56	25.	56	36.	14
4.	14	15.	56	26.	28	37.	49
5.	21	16.	63	27.	49	38.	21
6.	21	17.	63	28.	35	39.	56
7.	28	18.	70	29.	42	40.	77
8.	28	19.	70	30.	35	41.	77
9.	35	20.	7	31.	70	42.	84
10.	35	21.	70	32.	7	43.	84
11.	42	22.	14	33.	42	44.	91

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Problem Set

1. a. $\frac{3}{4}$
   b. $\frac{3}{7}$
   c. $\frac{4}{5}$
   d. $\frac{2}{6}$
2. a. $\frac{1}{8}$
   b. $\frac{7}{8}$
3. a. 9, 5, $\frac{1}{9}$, $\frac{5}{9}$
   b. 7, 3, $\frac{1}{7}$, $\frac{3}{7}$
   c. 5, 4, $\frac{1}{5}$, $\frac{4}{5}$
   d. 6, 2, $\frac{1}{6}$, $\frac{2}{6}$
   e. 8, 8, $\frac{1}{8}$, $\frac{8}{8}$

Exit Ticket

1. $\frac{2}{5}$; fraction strip partitioned, labeled, and shaded correctly
2. a. $\frac{1}{8}$
   b. $\frac{7}{8}$
3. 4, 2, $\frac{1}{4}$, $\frac{2}{4}$

Homework

1. a. $\frac{2}{3}$
   b. $\frac{5}{7}$
   c. $\frac{3}{5}$
   d. $\frac{2}{8}$
2. a. $\frac{1}{6}$
   b. $\frac{5}{6}$
3. a. 4, 3, $\frac{1}{4}$, $\frac{3}{4}$
   b. 9, 6, $\frac{1}{9}$, $\frac{6}{9}$
   c. 7, 4, $\frac{1}{7}$, $\frac{4}{7}$
   d. 6, 3, $\frac{1}{6}$, $\frac{3}{6}$

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Lesson 7

Sprint

Side A

1.	14	12.	49	23.	10	34.	8
2.	21	13.	56	24.	2	35.	7
3.	28	14.	63	25.	3	36.	9
4.	35	15.	70	26.	10	37.	6
5.	7	16.	8	27.	5	38.	8
6.	2	17.	7	28.	1	39.	77
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	84
9.	1	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	98
11.	42	22.	1	33.	9	44.	14

Side B

1.	7	12.	42	23.	2	34.	7
2.	14	13.	49	24.	10	35.	8
3.	21	14.	56	25.	3	36.	9
4.	28	15.	63	26.	2	37.	6
5.	35	16.	7	27.	1	38.	7
6.	3	17.	6	28.	10	39.	77
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	84
9.	1	20.	9	31.	3	42.	12
10.	5	21.	1	32.	4	43.	91
11.	70	22.	5	33.	9	44.	13

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Problem Set

1. 1 half
2. 3 fourths
3. 8 ninths
4. 5 sixths
5. 4 fifths
6. 2 thirds
7. 6 sevenths
8. 7 eighths
9. a. 8

   b. 9

   c. 12
10. $\frac{1}{5}, \frac{4}{5}; \frac{1}{7}, \frac{6}{7}; \frac{1}{11}, \frac{10}{11}$
11. $\frac{5}{6}$

Exit Ticket

1. 7 eighths
2. 6
3. $\frac{1}{4}, \frac{3}{4}$
4. $\frac{1}{10}$

Homework

1. 3 fourths
2. 9 tenths
3. 1 half
4. 2 thirds
5. 6 sevenths
6. 4 fifths
7. 10 elevenths
8. 5 sixths
9. $\frac{1}{5}, \frac{4}{5}; \frac{1}{12}, \frac{11}{12}$
10. 3 fourths; picture drawn and labeled to show $\frac{1}{4}$ finished and $\frac{3}{4}$ unfinished
11. 1 eighth; picture drawn and labeled to show $\frac{1}{8}$ uneaten and $\frac{7}{8}$ eaten

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Lesson 8

Sprint

Side A

1.	1/2	12.	1/3	23.	3/4	34.	4/5
2.	1/3	13.	1/3	24.	3/4	35.	4/5
3.	1/4	14.	1/3	25.	3/4	36.	1/10
4.	1/2	15.	2/3	26.	1/2	37.	2/10
5.	1/3	16.	2/3	27.	1/2	38.	3/10
6.	1/4	17.	2/3	28.	1/5	39.	8/10
7.	1/2	18.	1/4	29.	1/5	40.	5/10
8.	1/3	19.	1/4	30.	2/5	41.	7/10
9.	1/4	20.	1/4	31.	2/5	42.	6/10
10.	1/2	21.	1/4	32.	3/5	43.	5/6
11.	1/4	22.	3/4	33.	3/5	44.	1/6

Side B

1.	1/2	12.	1/3	23.	3/4	34.	4/5
2.	1/3	13.	1/3	24.	3/4	35.	4/5
3.	1/4	14.	1/3	25.	3/4	36.	5/10
4.	1/2	15.	2/3	26.	1/2	37.	1/10
5.	1/3	16.	2/3	27.	1/2	38.	2/10
6.	1/4	17.	2/3	28.	1/5	39.	3/10
7.	1/2	18.	1/4	29.	1/5	40.	8/10
8.	1/3	19.	1/4	30.	2/5	41.	6/10
9.	1/4	20.	1/4	31.	2/5	42.	7/10
10.	1/2	21.	1/4	32.	3/5	43.	1/6
11.	1/4	22.	3/4	33.	3/5	44.	5/6

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Problem Set

1. Number bond drawn showing $\frac{3}{5}$ and $\frac{2}{5}$ equals 1 whole; second visual model drawn
2. Number bond showing $\frac{3}{4}$ and $\frac{1}{4}$ equals 1 whole; second visual model drawn
3. Number bond showing $\frac{3}{6}$ and $\frac{3}{6}$ equals 1 whole; second visual model drawn
4. Number bond showing $\frac{2}{9}$ and $\frac{7}{9}$ equals 1 whole; second visual model drawn
5. a. Number bond showing $\frac{3}{4}$ and $\frac{1}{4}$ equals 1 whole; $\frac{3}{4}$ decomposed showing 3 units of $\frac{1}{4}$
   b. Number bond showing $\frac{2}{3}$ and $\frac{1}{3}$ equals 1 whole; $\frac{2}{3}$ decomposed showing 2 units of $\frac{1}{3}$
   c. Number bond showing $\frac{2}{4}$ and $\frac{2}{4}$ equals 1 whole; both of $\frac{2}{4}$ bonds decomposed showing 2 units of $\frac{1}{4}$
   d. Number bond showing $\frac{2}{5}$ and $\frac{3}{5}$ equals 1 whole; $\frac{2}{5}$ decomposed showing 2 units of $\frac{1}{5}$; $\frac{3}{5}$ decomposed showing 3 units of $\frac{1}{5}$
6. a. $\frac{3}{4}$
   b. 3
   c. Number bond showing $\frac{1}{4}$ and $\frac{3}{4}$ equals 1 whole; $\frac{3}{4}$ decomposed showing 3 units of $\frac{1}{4}$; second visual model drawn

Exit Ticket

1. Number bond showing $\frac{2}{5}$ and $\frac{3}{5}$ equals 1 whole; $\frac{2}{5}$ decomposed showing 2 units of $\frac{1}{5}$; $\frac{3}{5}$ decomposed showing 3 units of $\frac{1}{5}$
2. $\frac{5}{7}$; second shape matching the completed number bond

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Homework

1. Number bond showing $\frac{2}{4}$ and $\frac{2}{4}$ equals 1 whole; second visual model drawn
2. Number bond showing $\frac{5}{7}$ and $\frac{2}{7}$ equals 1 whole; second visual model drawn
3. Number bond showing $\frac{4}{5}$ and $\frac{1}{5}$ equals 1 whole; second visual model drawn
4. Number bond showing $\frac{0}{8}$ and $\frac{8}{8}$ equals 1 whole; second visual model drawn
5. a. Number bond showing $\frac{2}{3}$ and $\frac{1}{3}$ equals 1 whole; $\frac{2}{3}$ decomposed showing 2 units of $\frac{1}{3}$
   b. Number bond showing $\frac{4}{5}$ and $\frac{1}{5}$ equals 1 whole; $\frac{4}{5}$ decomposed showing 4 units of $\frac{1}{5}$
   c. Number bond showing $\frac{3}{5}$ and $\frac{2}{5}$ equals 1 whole; $\frac{3}{5}$ decomposed showing 3 units of $\frac{1}{5}$; $\frac{2}{5}$ decomposed showing 2 units of $\frac{1}{5}$
6. Drawing showing 3 equal parts; 2 thirds shaded; number bond showing $\frac{2}{3}$ and $\frac{1}{3}$ equals 1 whole; $\frac{2}{3}$

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Lesson 9

Sprint

Side A

1.	8	12.	48	23.	72	34.	32
2.	8	13.	56	24.	24	35.	72
3.	16	14.	56	25.	64	36.	16
4.	16	15.	64	26.	32	37.	56
5.	24	16.	72	27.	56	38.	24
6.	24	17.	72	28.	40	39.	64
7.	32	18.	80	29.	48	40.	88
8.	32	19.	80	30.	40	41.	88
9.	40	20.	8	31.	80	42.	96
10.	40	21.	80	32.	8	43.	96
11.	48	22.	16	33.	48	44.	104

Side B

1.	8	12.	48	23.	80	34.	72
2.	8	13.	56	24.	72	35.	32
3.	16	14.	56	25.	32	36.	24
4.	16	15.	64	26.	64	37.	16
5.	24	16.	72	27.	24	38.	56
6.	24	17.	72	28.	56	39.	64
7.	32	18.	80	29.	48	40.	88
8.	32	19.	80	30.	80	41.	88
9.	40	20.	24	31.	40	42.	96
10.	40	21.	8	32.	48	43.	96
11.	48	22.	16	33.	8	44.	104

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Problem Set

1. a. Answer provided
   b. $\frac{1}{8}$, 15, $\frac{15}{8}$
   c. $\frac{1}{6}$, 14, $\frac{14}{6}$
   d. $\frac{1}{5}$, 8, $\frac{8}{5}$
   e. $\frac{1}{4}$, 9, $\frac{9}{4}$
   f. $\frac{1}{3}$, 7, $\frac{7}{3}$
2. a. Each whole partitioned into sixths; 8 sixths shaded; $\frac{8}{6}$
   b. Each whole partitioned into fourth; 7 fourths shaded; $\frac{7}{4}$
   c. Each whole partitioned into fifths; 6 fifths shaded; 6 fifths
   d. Each whole partitioned into halves; 5 halves shaded; 5 halves
3. a. 2 equivalent whole drawn; each whole partitioned into 8 equal pieces; 10 pieces shaded
   b. $\frac{10}{8}$

Exit Ticket

1. $\frac{1}{3}$, 11, $\frac{11}{3}$
2. a. Each whole partitioned into thirds; 4 thirds shaded; $\frac{4}{3}$
   b. Each whole partitioned into fourths; 10 fourths shaded; 10 fourths

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Homework

1. a. Answer provided

   b. $\frac{1}{6}$, 9, $\frac{9}{6}$

   c. $\frac{1}{4}$, 15, $\frac{15}{4}$

   d. $\frac{1}{2}$, 6, $\frac{6}{2}$

   e. $\frac{1}{3}$, 4, $\frac{4}{3}$

   f. $\frac{1}{3}$, 4, $\frac{4}{3}$

2. a. Each whole partitioned into thirds; 5 thirds shaded; $\frac{5}{3}$

   b. Each whole partitioned into thirds; 9 thirds shaded; $\frac{9}{3}$

3. a. 2 equivalent whole drawn; each whole partitioned into 4 equal pieces; 5 pieces shaded

   b. $\frac{5}{4}$

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Lesson 10

Sprint

Side A

1.	16	12.	56	23.	10	34.	8
2.	24	13.	64	24.	2	35.	7
3.	32	14.	72	25.	3	36.	9
4.	40	15.	80	26.	10	37.	6
5.	8	16.	8	27.	5	38.	8
6.	2	17.	7	28.	1	39.	88
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	96
9.	1	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	112
11.	48	22.	1	33.	9	44.	14

Side B

1.	8	12.	48	23.	2	34.	7
2.	16	13.	56	24.	10	35.	8
3.	24	14.	64	25.	3	36.	9
4.	32	15.	72	26.	2	37.	6
5.	40	16.	7	27.	1	38.	7
6.	3	17.	6	28.	10	39.	88
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	96
9.	1	20.	9	31.	3	42.	12
10.	5	21.	1	32.	4	43.	104
11.	80	22.	5	33.	9	44.	13

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Problem Set

1. Specified fractional unit shaded in each strip
2. a. Greater than
   b. Less than
   c. Less than
   d. Greater than
   e. Less than
   f. Less than
   g. Greater than
   h. Greater than
3. More oil; explanations will vary.
4. a. >
   b. <
   c. =
   d. >
   e. <
   f. =
   g. =, <, <, <, =
5. No; explanations will vary.

Exit Ticket

1. Specified fractional unit shaded in each strip; circled $\frac{1}{2}$; shaded star drawn next to $\frac{1}{4}$
2. a. >
   b. =
   c. <

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Homework

1. Specified fractional unit shaded in each strip
2. a. Greater than
   b. Less than
   c. Less than
   d. Greater than
   e. Less than
   f. Less than
   g. Greater than
   h. Greater than
3. More water, explanations will vary.
4. a. >
   b. <
   c. =
   d. <
   e. <
   f. =
5. Answers will vary.

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Lesson 11

Problem Set

1. $\frac{1}{3}$; answers will vary.
2. $\frac{1}{5}$; answers will vary.
3. $\frac{1}{10}$; answers will vary.
4. $\frac{1}{12}$; answers will vary.
5. Answers will vary; $\frac{1}{8}$
6. Answers will vary; $\frac{1}{9}$
7. Answers will vary; $\frac{1}{12}$
8. Answers will vary.
9. No, explanations will vary.
10. No, explanations will vary.

Exit Ticket

1. Answers will vary.
2. Answers will vary.

Homework

1. $\frac{1}{8}$; answers will vary.
2. $\frac{1}{4}$; answers will vary.
3. $\frac{1}{10}$; answers will vary.
4. $\frac{1}{9}$; answers will vary.
5. Answers will vary; $\frac{1}{2}$
6. Answers will vary; $\frac{1}{4}$
7. Answers will vary; $\frac{1}{12}$
8. Answers will vary.
9. a. Explanations will vary.

   b. Explanations will vary.

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Lesson 12

Sprint

Side A

1.	9	12.	54	23.	81	34.	36
2.	9	13.	63	24.	27	35.	81
3.	18	14.	63	25.	72	36.	18
4.	18	15.	72	26.	36	37.	63
5.	27	16.	72	27.	63	38.	27
6.	27	17.	81	28.	45	39.	72
7.	36	18.	90	29.	54	40.	99
8.	36	19.	90	30.	45	41.	99
9.	45	20.	9	31.	90	42.	108
10.	45	21.	90	32.	9	43.	108
11.	54	22.	18	33.	54	44.	117

Side B

1.	9	12.	54	23.	90	34.	81
2.	9	13.	63	24.	81	35.	36
3.	18	14.	63	25.	36	36.	27
4.	18	15.	72	26.	72	37.	18
5.	27	16.	72	27.	27	38.	63
6.	27	17.	81	28.	63	39.	72
7.	36	18.	90	29.	54	40.	99
8.	36	19.	90	30.	90	41.	99
9.	45	20.	27	31.	45	42.	108
10.	45	21.	9	32.	54	43.	108
11.	54	22.	18	33.	9	44.	117

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Problem Set

1. Answers will vary.
2. Answers will vary.
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.
6. Answers will vary.

Exit Ticket

1. Picture representing 1 whole
2. Picture representing 1 whole
3. Both, explanations will vary.

Homework

1. Picture representing 2 halves
2. Picture representing 6 sixths
3. Picture representing 3 thirds
4. Picture representing 4 fourths
5. Answer provided
6. Picture representing 2 halves; number bond showing 2 units of $\frac{1}{2}$ equals 1 whole
7. Picture representing 5 fifths; number bond showing 5 units of $\frac{1}{5}$ equals 1 whole
8. Picture representing 7 sevenths; number bond showing 7 units of $\frac{1}{7}$ equals 1 whole
9. No, Explanations will vary.

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Lesson 13

Problem Set

1. a. $\frac{1}{2}$
   b. Shaded part divided to show $\frac{1}{2}$
2. a. $\frac{1}{4}$
   b. Shaded part divided to show $\frac{1}{4}$
3. a. $\frac{1}{3}$
   b. Shaded part divided to show $\frac{1}{3}$
4. a. $\frac{1}{5}$
   b. b. Shaded part divided to show $\frac{1}{5}$
5. a. $\frac{1}{6}$
   b. Shaded part divided to show $\frac{1}{6}$
6. a. C
   b. B
   c. A
   d. 2; $\frac{1}{2}$
   e. $\frac{1}{2}$; $\frac{1}{4}$
7. Answers will vary

Exit Ticket

Karol, explanations will vary.

Homework

1. a. $\frac{1}{2}$
   b. Shaded part divided to show $\frac{1}{2}$
2. a. $\frac{1}{3}$
   b. Shaded part divided to show $\frac{1}{3}$
3. a. $\frac{1}{4}$
   b. Shaded part divided to show $\frac{1}{4}$
4. a. $\frac{1}{5}$
   b. Shaded part divided to show $\frac{1}{5}$
5. a. B
   b. A
   c. 3; 2
   d. 3; number bond showing 3 units of $\frac{1}{3}$ equals 1 whole
   e. 2; number bond showing 2 units of $\frac{1}{2}$ equals 1 whole
6. Strings drawn correctly

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Lesson 14

Problem Set

1. a. Answer provided; fraction strip partitioned and labeled to show halves; number line partitioned and labeled correctly from $\frac{0}{2}$ to $\frac{2}{2}$

   b. Number bond showing 3 units of $\frac{1}{3}$; fraction strip partitioned and labeled to show thirds; number line partitioned and labeled correctly from $\frac{0}{3}$ to $\frac{3}{3}$

   c. Number bond showing 4 units of $\frac{1}{4}$; fraction strip partitioned and labeled to show fourths; number line partitioned and labeled correctly from $\frac{0}{4}$ to $\frac{4}{4}$

   d. Number bond showing 5 units of $\frac{1}{5}$; fraction strip partitioned and labeled to show fifths; number line partitioned and labeled correctly from $\frac{0}{5}$ to $\frac{5}{5}$

2. Number line showing fourths; each quarter (fourth) hour from $\frac{0}{4}$ to $\frac{4}{4}$ correctly labeled correctly, including 0 hours and 1 hour

3. Number line showing fifths; each fifth meter from $\frac{0}{5}$ to $\frac{5}{5}$ correctly labeled, including 0 meters and 1 meter

Exit Ticket

1. Number bond showing 6 units of $\frac{1}{6}$; fraction strip partitioned and labeled to show sixths; number line partitioned and labeled correctly from $\frac{0}{6}$ to $\frac{6}{6}$

2. Number bond showing 5 units of $\frac{1}{5}$; number line partitioned and labeled correctly from $\frac{0}{5}$ to $\frac{5}{5}$

   a. $\frac{1}{5}$

   b. 20 cents

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Homework

1. a. Already completed number bond; fraction strip is partitioned and labeled correctly to show halves; number line partitioned and labeled correctly from $\frac{0}{2}$ to $\frac{2}{2}$

   b. Number bond is drawn correctly to show 8 units of $\frac{1}{8}$; fraction strip is partitioned and labeled correctly to show eighths; number line partitioned and labeled correctly from $\frac{0}{8}$ to $\frac{8}{8}$

   c. Number bond is drawn correctly to show 5 units of $\frac{1}{5}$; fraction strip is partitioned and labeled correctly to show fifths; number line partitioned and labeled correctly from $\frac{0}{5}$ to $\frac{5}{5}$

2. Yes

3. a. 9 seeds

   b. 36 seeds

   c. Number line is drawn and partitioned correctly to show ninths

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Lesson 15

Problem Set

1. a. Number line partitioned into thirds and labeled correctly with $\frac{0}{3}, \frac{2}{3}, \frac{3}{3}$; answer provided

   b. Number line partitioned into fourths and labeled correctly with $\frac{0}{4}, \frac{3}{4}, \frac{4}{4}$; number bond showing $\frac{3}{4}$ and $\frac{1}{4}$ equals 1 whole

   c. Number line partitioned into fifths and labeled correctly with $\frac{0}{5}, \frac{3}{5}, \frac{5}{5}$; number bond showing $\frac{3}{5}$ and $\frac{2}{5}$ equals 1 whole

   d. Number line partitioned into sixths and labeled correctly with $\frac{0}{6}, \frac{5}{6}, \frac{6}{6}$; number bond showing $\frac{5}{6}$ and $\frac{1}{6}$ equals 1 whole

   e. Number line partitioned into tenths and labeled correctly with $\frac{0}{10}, \frac{3}{10}, \frac{10}{10}$; number bond showing $\frac{3}{10}$ and $\frac{7}{10}$ equals 1 whole

2. Number line drawn with 0 and 1 labeled correctly; fraction strip used appropriately to partition and label a number line to show eighths; number line labeled correctly from $\frac{0}{8}$ to $\frac{8}{8}$

3. a. 4 equal parts; rope labeled correctly from $\frac{0}{4}$ to $\frac{4}{4}$.

   b. $\frac{2}{4}$

   c. $\frac{1}{5}$

Exit Ticket

1. Number line partitioned into fifths and labeled correctly with $\frac{0}{5}, \frac{3}{5}, \frac{5}{5}$; number bond showing $\frac{3}{5}$ and $\frac{2}{5}$ equals 1 whole.

2. Number line partitioned into sixths; $\frac{1}{6}, \frac{3}{6}, \frac{5}{6}$ placed correctly on the number line

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Homework

1. a. Answer provided

   b. Number line partitioned into sixths and labeled correctly with $\frac{0}{6}, \frac{3}{6}, \frac{6}{6}$; number bond showing $\frac{3}{6}$ and $\frac{3}{6}$ equals 1 whole

   c. Number line partitioned into fifths and labeled correctly with $\frac{0}{5}, \frac{2}{5}, \frac{5}{5}$; number bond showing $\frac{2}{5}$ and $\frac{3}{5}$ equals 1 whole

   d. Number line partitioned into tenths and labeled correctly with $\frac{0}{10}, \frac{7}{10}, \frac{10}{10}$; number bond showing $\frac{7}{10}$ and $\frac{3}{10}$ equals 1 whole

   e. Number line partitioned into sevenths and labeled correctly with $\frac{0}{7}, \frac{3}{7}, \frac{7}{7}$; number bond showing $\frac{3}{7}$ and $\frac{4}{7}$ equals 1 whole

2. a. Henry: $\frac{5}{10}$; Ben: $\frac{9}{10}$; Tina: $\frac{2}{10}$

   b. Number line partitioned into tenths; $\frac{2}{10}, \frac{5}{10}, \frac{9}{10}$ placed correctly on the number line

3. a. Number line drawn with 0 and 1 labeled correctly; fraction strip used appropriately to partition and label number line to show eighths; number line labeled correctly from $\frac{0}{8}$ to $\frac{8}{8}$

   b. Number bonds matching drawing

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Lesson 16

Sprint

Side A

1.	18	12.	63	23.	10	34.	8
2.	27	13.	72	24.	2	35.	7
3.	36	14.	81	25.	3	36.	9
4.	45	15.	90	26.	10	37.	6
5.	9	16.	8	27.	5	38.	8
6.	2	17.	7	28.	1	39.	99
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	108
9.	1	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	126
11.	54	22.	1	33.	9	44.	14

Side B

1.	9	12.	54	23.	2	34.	7
2.	18	13.	63	24.	10	35.	8
3.	27	14.	72	25.	3	36.	9
4.	36	15.	81	26.	2	37.	6
5.	45	16.	7	27.	1	38.	7
6.	3	17.	6	28.	10	39.	99
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	108
9.	1	20.	9	31.	3	42.	12
10.	5	21.	1	32.	4	43.	117
11.	90	22.	5	33.	9	44.	13

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Problem Set

1. a. Answer provided

   b. Number line partitioned into thirds and labeled; $\frac{3}{3}$, $\frac{6}{3}$ boxed

   c. Number line partitioned into halves and labeled; $\frac{4}{2}$, $\frac{6}{2}$, $\frac{8}{2}$ boxed

   d. Number line partitioned into fourths and labeled; $\frac{12}{4}$, $\frac{16}{4}$, $\frac{20}{4}$ boxed; 4 labeled below $\frac{16}{4}$

   e. Number line partitioned into thirds and labeled; $\frac{18}{3}$, $\frac{21}{3}$, $\frac{24}{3}$, $\frac{27}{3}$ boxed; 7 labeled below $\frac{21}{3}$, 8 labeled below $\frac{24}{3}$

2. Number line partitioned into fifths and labeled; $\frac{0}{5}$, $\frac{5}{5}$, $\frac{10}{5}$ boxed

3. Number line partitioned into thirds and labeled; $\frac{3}{3}$, $\frac{6}{3}$, $\frac{9}{3}$, $\frac{12}{3}$ boxed

4. Number line drawn with endpoints 0 and 3; wholes labeled; number line partitioned and labeled

Exit Ticket

1. Number line partitioned into fifths and labeled; $\frac{10}{5}$, $\frac{15}{5}$ boxed

2. Number line drawn with endpoints 0 and 2, wholes labeled; number line partitioned and labeled

Homework

1. a. Answer provided

   b. Number line partitioned into eighths and labeled; $\frac{16}{8}$, $\frac{24}{8}$ boxed

   c. Number line partitioned into fourths and labeled; $\frac{8}{4}$, $\frac{12}{4}$, $\frac{16}{4}$ boxed

   d. Number line partitioned into halves and labeled; $\frac{6}{2}$, $\frac{8}{2}$, $\frac{10}{2}$ boxed; 4 labeled below $\frac{8}{2}$

   e. Number line partitioned into fifths and labeled; $\frac{30}{5}$, $\frac{35}{5}$, $\frac{40}{5}$, $\frac{45}{5}$ boxed; 7 labeled below $\frac{35}{5}$, 8 labeled below $\frac{40}{5}$

2. Number line partitioned into sixths and labeled; $\frac{18}{6}$, $\frac{24}{6}$, $\frac{30}{6}$ boxed

3. Number line partitioned into halves and labeled; $\frac{8}{2}$, $\frac{10}{2}$, $\frac{12}{2}$, $\frac{14}{2}$ boxed

4. Number line with endpoints 0 and 3; wholes labeled; number line partitioned and labeled

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Lesson 17

Sprint

Side A

1.	1	12.	5	23.	8	34.	6
2.	1	13.	2	24.	8	35.	7
3.	1	14.	3	25.	3	36.	8
4.	1	15.	4	26.	10	37.	8
5.	0	16.	5	27.	9	38.	9
6.	0	17.	6	28.	9	39.	11
7.	0	18.	6	29.	4	40.	9
8.	0	19.	7	30.	10	41.	8
9.	2	20.	7	31.	5	42.	9
10.	3	21.	2	32.	4	43.	8
11.	4	22.	10	33.	6	44.	8

Side B

1.	1	12.	5	23.	8	34.	6
2.	1	13.	2	24.	8	35.	8
3.	1	14.	3	25.	10	36.	7
4.	1	15.	4	26.	3	37.	9
5.	0	16.	5	27.	9	38.	8
6.	0	17.	6	28.	9	39.	11
7.	0	18.	6	29.	10	40.	9
8.	0	19.	7	30.	4	41.	9
9.	2	20.	7	31.	4	42.	8
10.	3	21.	10	32.	5	43.	9
11.	4	22.	2	33.	6	44.	7

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Problem Set

1. Number line partitioned into sixths; given fractions located and labeled
2. Number line partitioned into fourths; given fractions located and labeled
3. Number line partitioned into thirds; given fractions located and labeled
4. Alex; number line partitioned into fourths; 2 inches and $\frac{7}{4}$ inches located and labeled; number line showing 2 inches is longer than $\frac{7}{4}$ inches
5. Number line with endpoints 0 km to 4 km, partitioned into fifths; $\frac{0}{5}$ (0) km, $\frac{20}{5}$ (4) km, $\frac{7}{5}$ km, $\frac{12}{5}$ km located and labeled

Exit Ticket

1. Number line partitioned into thirds; given fractions located and labeled
2. $\frac{1}{2}$; number line drawn

Homework

1. Number line partitioned into halves; given fractions located and labeled
2. Number line partitioned into thirds; given fractions located and labeled
3. Number line partitioned into fourths; given fractions located and labeled
4. Number line drawn with endpoints 0 km to 4 km, partitioned correctly into thirds; $\frac{0}{3}$ (0) km, $\frac{12}{3}$ (4) km, $\frac{4}{3}$ km, $\frac{10}{3}$ km located and labeled
5. Yes; number line partitioned into fourths; $\frac{19}{4}$ ft. located and labeled; number line showing $\frac{19}{4}$ ft. is smaller than 5 ft.

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Lesson 18

Problem Set

1. Answer provided
2. Number line partitioned into sixths; $\frac{2}{6}$ and $\frac{3}{6}$ placed; $\frac{2}{6}$ circled; <
3. Number line partitioned into halves and fourths; $\frac{1}{2}$ and $\frac{1}{4}$ placed; $\frac{1}{4}$ circled; >
4. Number line partitioned into thirds and sixths; $\frac{2}{3}$ and $\frac{2}{6}$ placed; $\frac{2}{6}$ circled; >
5. Number line partitioned into eighths and fourths; $\frac{11}{8}$ and $\frac{7}{4}$ placed; $\frac{11}{8}$ circled; <
6. JoAnn, explanations will vary.
7. Red thread, explanations will vary.
8. Answers will vary.

Exit Ticket

1. Number line partitioned into fifths; $\frac{3}{5}$ and $\frac{1}{5}$ placed; $\frac{1}{5}$ circled; >
2. Number line partitioned into halves and fourths; $\frac{1}{2}$ and $\frac{3}{4}$ placed; $\frac{1}{2}$ circled; <
3. No; $\frac{3}{2}$; number line drawn and partitioned into thirds and halves; $\frac{2}{3}$ and $\frac{3}{2}$ placed correctly on the number line; number line showing $\frac{2}{3}$ is closer to 0 than $\frac{3}{2}$

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Homework

1. Number line partitioned into thirds; $\frac{1}{3}$ and $\frac{2}{3}$ placed; $\frac{1}{3}$ circled; <
2. Number line partitioned into sixths; $\frac{4}{6}$ and $\frac{1}{6}$ placed; $\frac{1}{6}$ circled; >
3. Number line partitioned into fourths and eighths; $\frac{1}{4}$ and $\frac{1}{8}$ placed; $\frac{1}{8}$ circled; >
4. Number line partitioned into fifths and tenths; $\frac{4}{5}$ and $\frac{4}{10}$ placed; $\frac{4}{10}$ circled; >
5. Number line partitioned into sixths and thirds; $\frac{8}{6}$ and $\frac{5}{3}$ placed; $\frac{8}{6}$ circled; <
6. Jay, explanations will vary.
7. Wendy, explanations will vary.
8. Explanations will vary.

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Lesson 19

Sprint

Side A

1.	2	12.	4	23.	2	34.	9
2.	1	13.	1	24.	1	35.	6
3.	2	14.	5	25.	3	36.	7
4.	3	15.	3	26.	3	37.	6
5.	5	16.	10	27.	4	38.	9
6.	4	17.	2	28.	5	39.	8
7.	5	18.	4	29.	4	40.	8
8.	1	19.	2	30.	5	41.	8
9.	2	20.	1	31.	7	42.	9
10.	3	21.	4	32.	6	43.	9
11.	5	22.	3	33.	7	44.	8

Side B

1.	5	12.	4	23.	2	34.	7
2.	1	13.	10	24.	1	35.	6
3.	2	14.	1	25.	4	36.	7
4.	3	15.	5	26.	3	37.	8
5.	5	16.	3	27.	4	38.	9
6.	4	17.	2	28.	5	39.	8
7.	2	18.	4	29.	4	40.	6
8.	1	19.	2	30.	5	41.	9
9.	2	20.	1	31.	9	42.	8
10.	3	21.	3	32.	6	43.	9
11.	5	22.	3	33.	7	44.	8

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Problem Set

1. a. Number line divided into halves; given fractions placed; each whole written correctly as a fraction
   b. Number line divided into fourths; given fractions placed; each whole written correctly as a fraction
   c. Number line divided into eighths; given fractions placed; each whole written correctly as a fraction
2. Row 1: <, <, >
   Row 2: >, <, =
   Row 3: <, >, >
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.

Exit Ticket

1. Number line divided into fourths; given fractions placed; each whole written correctly as a fraction
2. From left to right: <, >, >
3. $\frac{9}{4}$; number line showing 2 wholes, or $\frac{8}{4}$, is closer to 0

Homework

1. a. Number line divided into thirds; given fractions placed; each whole written correctly as a fraction
   b. Number line divided into sixths; given fractions placed; each whole written correctly as a fraction
   c. Number line divided into fifths; given fractions placed; each whole written correctly as a fraction
2. Row 1: >, <, >
   Row 2: =, <, >
   Row 3: >, =, >
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.

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Lesson 20

Pattern Sheet

7	14	21	28
35	7	14	7
21	7	28	7
35	7	14	21
14	28	14	35
14	7	14	21
7	21	14	21
28	21	35	21
28	7	28	14
28	21	28	35
28	35	7	35
14	35	21	35
28	14	28	21
35	21	14	28
21	35	14	28

Problem Set

1. a. $\frac{4}{8}, \frac{4}{8}, \frac{3}{8}, \frac{4}{8}$; first, second, and last shapes circled
   b. $\frac{2}{5}, \frac{1}{5}, \frac{2}{5}, \frac{2}{5}$; first, third, and last shapes circled
   c. $\frac{2}{6}, \frac{2}{6}, \frac{4}{6}, \frac{3}{6}$; first and second shapes circled
2. a. $\frac{1}{4}$; two different representations of $\frac{1}{4}$ drawn
   b. $\frac{1}{7}$; two different representations of $\frac{1}{7}$ drawn
3. a. Triangles, squares
   b. 4 triangles, 4 squares
   c. At least two different representations of Ann's set of shapes drawn with no overlaps; $\frac{2}{6}$
4. Cristina, explanations will vary.

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Exit Ticket

1. $\frac{3}{5}, \frac{3}{5}, \frac{2}{5}, \frac{3}{5}$; first, second, and last shapes circled
2. a. $\frac{5}{11}$; two different representations of $\frac{5}{11}$ drawn
   b. $\frac{2}{10}$; two different representations of $\frac{2}{10}$ drawn

Homework

1. $\frac{3}{7}$; two different representations of $\frac{3}{7}$ drawn
2. a. No, these shapes are not equivalent. Although both shapes show $\frac{4}{5}$, the units are not the same size.
   b. Two different representations of $\frac{4}{5}$ that are equivalent are drawn correctly.
3. Neither, explanations will vary.

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Lesson 21

Problem Set

1. $\frac{1}{2}$: $\frac{0}{2}, \frac{3}{2}$; $\frac{1}{4}, \frac{1}{4}, \frac{2}{4}, \frac{4}{4}, \frac{6}{4}, \frac{8}{4}$

   $\frac{1}{2}$: $\frac{2}{2}, \frac{3}{2}$; $\frac{1}{6}, \frac{1}{6}, \frac{3}{6}, \frac{6}{6}, \frac{9}{6}, \frac{12}{6}$

2. Shaded blue: $\frac{1}{2}, \frac{2}{4}; \frac{1}{2}, \frac{3}{6}$

   Shaded yellow: $\frac{2}{2}, \frac{4}{4}; \frac{2}{2}, \frac{6}{6}$

   Shaded green: $\frac{3}{2}, \frac{6}{4}; \frac{3}{2}, \frac{9}{6}$

   Shaded red: $\frac{4}{2}, \frac{8}{4}; \frac{4}{2}, \frac{12}{6}$

3. $\frac{3}{6}; \frac{2}{2}, \frac{4}{4}; \frac{9}{6}, \frac{6}{4}$

4. $\frac{4}{8}$ inch; number line drawn

5. Yes; $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$; explanations will vary.

Exit Ticket

Number line drawn; explanations will vary.

Homework

1. $\frac{1}{4}$: $\frac{0}{4}, \frac{3}{4}, \frac{5}{4}, \frac{6}{4}$; $\frac{1}{8}$: $\frac{2}{8}, \frac{4}{8}, \frac{7}{8}, \frac{8}{8}, \frac{12}{8}, \frac{16}{8}$

   $\frac{1}{3}$: $\frac{1}{3}, \frac{3}{3}, \frac{5}{3}$; $\frac{1}{6}$: $\frac{1}{6}, \frac{4}{6}, \frac{6}{6}, \frac{8}{6}, \frac{10}{6}, \frac{12}{6}$

2. Shaded purple: $\frac{4}{4}$, 1, $\frac{8}{8}; \frac{3}{3}$, 1, $\frac{6}{6}$

   Shaded yellow: $\frac{2}{4}, \frac{4}{8}$

   Shaded blue: $\frac{8}{4}$, 2, $\frac{16}{8}; \frac{6}{3}$, 2, $\frac{12}{6}$

   Shaded green: $\frac{5}{3}, \frac{10}{6}$

   Answers will vary.

3. Row 1: $\frac{2}{8}; \frac{12}{8}; \frac{4}{6}$

   Row 2: $\frac{12}{6}; \frac{6}{6}; \frac{16}{8}$

4. a. Group B; explanations will vary.

   b. $\frac{4}{6}$ (or $\frac{2}{3}$); explanations will vary.

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Lesson 22

Problem Set

1. $\frac{1}{2}$ matched to $\frac{2}{4}$
   $\frac{4}{6}$ matched to $\frac{2}{3}$
   $\frac{3}{4}$ matched to $\frac{6}{8}$
   $\frac{3}{9}$ matched to $\frac{1}{3}$
2. 2, 8, 16
3. Explanations will vary.
4. 2 sixths, explanations will vary.
5. Explanations will vary.

Exit Ticket

1. Answers will vary.
2. Answers will vary.

Homework

1. $\frac{1}{2}$ matched to $\frac{3}{6}$
   $\frac{2}{5}$ matched to $\frac{4}{10}$
   $\frac{8}{10}$ matched to $\frac{4}{5}$
   $\frac{2}{8}$ matched to $\frac{1}{4}$
2. 8, 6, 18
3. Explanations will vary.
4. 3 ninths, explanations will vary.
5. 6; explanations will vary.

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Lesson 23

Sprint

Side A

1.	6	12.	31	23.	13	34.	84
2.	7	13.	41	24.	23	35.	15
3.	8	14.	51	25.	33	36.	25
4.	9	15.	61	26.	43	37.	35
5.	10	16.	91	27.	53	38.	45
6.	10	17.	12	28.	83	39.	95
7.	9	18.	22	29.	14	40.	81
8.	8	19.	32	30.	24	41.	62
9.	7	20.	42	31.	34	42.	83
10.	6	21.	52	32.	44	43.	94
11.	21	22.	82	33.	54	44.	105

Side B

1.	6	12.	21	23.	13	34.	94
2.	7	13.	31	24.	23	35.	15
3.	8	14.	41	25.	33	36.	25
4.	9	15.	51	26.	43	37.	35
5.	10	16.	81	27.	53	38.	45
6.	10	17.	12	28.	73	39.	85
7.	9	18.	22	29.	14	40.	61
8.	8	19.	32	30.	24	41.	82
9.	7	20.	42	31.	34	42.	63
10.	6	21.	52	32.	44	43.	104
11.	11	22.	92	33.	54	44.	95

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Problem Set

1. Number line divided into fourths and labeled correctly in red pencil
2. Number line divided into eighths and labeled correctly in blue pencil
3. $\frac{0}{4}=\frac{0}{8}$, $\frac{1}{4}=\frac{2}{8}$, $\frac{2}{4}=\frac{4}{8}$, $\frac{3}{4}=\frac{6}{8}$, $\frac{4}{4}=\frac{8}{8}$, $\frac{5}{4}=\frac{10}{8}$, $\frac{6}{4}=\frac{12}{8}$, $\frac{7}{4}=\frac{14}{8}$, $\frac{8}{4}=\frac{16}{8}$, $\frac{9}{4}=\frac{18}{8}$, $\frac{10}{4}=\frac{20}{8}$, $\frac{11}{4}=\frac{22}{8}$, $\frac{12}{4}=\frac{24}{8}$
4. $\frac{7}{2}=\frac{14}{4}=\frac{28}{8}$; number line drawn, divided, and labeled correctly with these fractions
5. $\frac{2}{6}=\frac{1}{3}$; $\frac{1}{2}=\frac{2}{4}$; $\frac{10}{8}=\frac{5}{4}$; $\frac{8}{4}=\frac{10}{5}$
6. No; explanations will vary.

Exit Ticket

$\frac{2}{3}$; number line drawn, divided, and labeled correctly to explain the answer

Homework

1. Number line divided into thirds and labeled correctly with a colored pencil
2. Number line divided into sixths and labeled correctly with another colored pencil
3. $\frac{0}{3}=\frac{0}{6}$, $\frac{1}{3}=\frac{2}{6}$, $\frac{2}{3}=\frac{4}{6}$, $\frac{3}{3}=\frac{6}{6}$, $\frac{4}{3}=\frac{8}{6}$, $\frac{5}{3}=\frac{10}{6}$, $\frac{6}{3}=\frac{12}{6}$, $\frac{7}{3}=\frac{14}{6}$, $\frac{8}{3}=\frac{16}{6}$, $\frac{9}{3}=\frac{18}{6}$
4. $\frac{20}{6}=\frac{10}{3}$; $\frac{12}{3}=\frac{24}{6}$; number line drawn, divided, and labeled correctly with these fractions
5. $\frac{2}{3}=\frac{4}{6}$; $\frac{1}{4}=\frac{2}{8}$; $\frac{7}{4}=\frac{14}{8}$; $\frac{7}{5}=\frac{14}{10}$
6. $\frac{4}{12}$; number line drawn to explain the answer

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Lesson 24

Sprint

Side A

1.	7	12.	41	23.	13	34.	15
2.	8	13.	51	24.	23	35.	25
3.	9	14.	91	25.	33	36.	35
4.	10	15.	71	26.	43	37.	45
5.	10	16.	12	27.	53	38.	85
6.	9	17.	22	28.	73	39.	16
7.	8	18.	32	29.	14	40.	26
8.	7	19.	42	30.	24	41.	36
9.	11	20.	52	31.	34	42.	46
10.	21	21.	82	32.	44	43.	56
11.	31	22.	62	33.	94	44.	86

Side B

1.	7	12.	41	23.	13	34.	15
2.	8	13.	51	24.	23	35.	25
3.	9	14.	81	25.	33	36.	35
4.	10	15.	61	26.	43	37.	45
5.	10	16.	12	27.	53	38.	95
6.	9	17.	22	28.	83	39.	16
7.	8	18.	32	29.	14	40.	26
8.	7	19.	42	30.	24	41.	36
9.	11	20.	52	31.	34	42.	46
10.	21	21.	92	32.	44	43.	56
11.	31	22.	72	33.	74	44.	96

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Problem Set

1. Halves: Answer provided

   Thirds: Number bond showing 3 units of $\frac{1}{3}$; number line partitioned and labeled from 0 to 1

   Fourths: Number bond showing 4 units of $\frac{1}{4}$; number line partitioned and labeled from 0 to 1

   Fifths: Number bond showing 5 units of $\frac{1}{5}$; number line partitioned and labeled from 0 to 1

2. Fractions equal to 1 circled; $\frac{3}{3} = \frac{4}{4} = \frac{5}{5}$

3. Answers will vary.

4. No, explanations will vary.

Exit Ticket

1. Fourths: Number bond showing 4 units of $\frac{1}{4}$; number line partitioned and labeled from 0 to 1

2. 4 copies; $\frac{4}{4}$

Homework

1. Fifths: Number bond showing 5 units of $\frac{1}{5}$; number line partitioned and labeled from 0 to 1

   Sixths: Number bond showing 6 units of $\frac{1}{6}$; number line partitioned labeled from 0 to 1

   Sevenths: Number bond showing 7 units of $\frac{1}{7}$; number line partitioned and labeled from 0 to 1

   Eighths: Number bond showing 8 units of $\frac{1}{8}$; number line partitioned and labeled from 0 to 1

2. Fractions equal to 1 circled; $\frac{5}{5} = \frac{6}{6} = \frac{7}{7} = \frac{8}{8}$

3. Answers will vary, $\frac{9}{9}$

4. No, explanations will vary.

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Lesson 25

Sprint

Side A

1.	10	12.	53	23.	17	34.	29
2.	0	13.	4	24.	27	35.	79
3.	20	14.	14	25.	57	36.	59
4.	1	15.	64	26.	77	37.	84
5.	11	16.	5	27.	8	38.	47
6.	31	17.	15	28.	18	39.	36
7.	2	18.	75	29.	28	40.	65
8.	12	19.	6	30.	68	41.	68
9.	42	20.	16	31.	48	42.	89
10.	3	21.	76	32.	9	43.	45
11.	13	22.	7	33.	19	44.	86

Side B

1.	0	12.	83	23.	17	34.	29
2.	10	13.	4	24.	27	35.	69
3.	20	14.	14	25.	47	36.	49
4.	1	15.	84	26.	67	37.	64
5.	11	16.	5	27.	8	38.	57
6.	61	17.	15	28.	18	39.	46
7.	2	18.	35	29.	28	40.	75
8.	12	19.	6	30.	58	41.	58
9.	72	20.	16	31.	38	42.	79
10.	3	21.	36	32.	9	43.	85
11.	13	22.	7	33.	19	44.	46

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Problem Set

1. Answer provided; $\frac{3}{2}$; $\frac{3}{1}$; $\frac{4}{4}$; $\frac{4}{2}$; $\frac{4}{1}$; $\frac{6}{6}$; $\frac{6}{3}$; $\frac{6}{1}$

2. $\frac{0}{1}, \frac{1}{1}, \frac{2}{1}, \frac{3}{1}, \frac{4}{1}, \frac{5}{1}, \frac{6}{1}$
   10, 11, $\frac{12}{1}$, $\frac{13}{1}$, 14, $\frac{15}{1}$, $\frac{16}{1}$

3. Explanations will vary.

Exit Ticket

1. $\frac{5}{1}$

2. Number line partitioned into thirds; fraction for 3 wholes renamed as $\frac{9}{3}$

Homework

1. $\frac{4}{4}$; $\frac{4}{2}$; $\frac{4}{1}$; $\frac{8}{8}$; $\frac{8}{4}$; $\frac{8}{1}$

2. $\frac{0}{1}, \frac{4}{1}, \frac{6}{1}, \frac{12}{1}$
   15, 16, $\frac{17}{1}$, $\frac{18}{1}$, 19, $\frac{20}{1}$, $\frac{21}{1}$

3. Explanations will vary.

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Lesson 26

Sprint

Side A

1.	8	12.	91	23.	73	34.	85
2.	9	13.	12	24.	14	35.	16
3.	10	14.	22	25.	24	36.	26
4.	10	15.	32	26.	34	37.	36
5.	9	16.	42	27.	44	38.	46
6.	8	17.	52	28.	94	39.	76
7.	11	18.	82	29.	54	40.	17
8.	21	19.	13	30.	15	41.	27
9.	31	20.	23	31.	25	42.	37
10.	41	21.	33	32.	35	43.	47
11.	51	22.	43	33.	45	44.	97

Side B

1.	8	12.	81	23.	63	34.	75
2.	9	13.	12	24.	14	35.	16
3.	10	14.	22	25.	24	36.	26
4.	10	15.	32	26.	34	37.	36
5.	9	16.	42	27.	44	38.	46
6.	8	17.	52	28.	74	39.	86
7.	11	18.	92	29.	64	40.	17
8.	21	19.	13	30.	15	41.	27
9.	31	20.	23	31.	25	42.	37
10.	41	21.	33	32.	35	43.	47
11.	51	22.	43	33.	45	44.	97

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Problem Set

1. Halves: 0, 0; 2, 2; 4; number bond completed

   Thirds: 6, 6; 9, 9; 12, 12; number bond completed

2. Halves: Answer provided

   Thirds: $\frac{6}{3}, \frac{9}{3}, \frac{12}{3}$

   Fourths: $\frac{8}{4}, \frac{12}{4}, \frac{16}{4}$

   Sixths: $\frac{12}{6}, \frac{18}{6}, \frac{24}{6}$

3. a. Number line representing 1 meter of wire; partitioned correctly into fourths; 4

   b. 12 days

4. a. Number line representing 1 pound of food; partitioned correctly into thirds

   b. Second number line representing 4 pounds of food; partitioned correctly into thirds; 1

   c. 2

Exit Ticket

a. Number line drawn to represent 2 yards of fabric

b. Number line partitioned and labeled to show fifths

c. 10; number bond completed

Homework

1. Sixths: 0, 0; 6, 6; 12; number bond completed

   Fifths: 10, 10; 15, 15; 20, 20; number bond completed

2. Thirds: Answer provided

   Sevenths: $\frac{14}{7}, \frac{21}{7}, \frac{28}{7}$

   Eighths: $\frac{16}{8}, \frac{24}{8}, \frac{32}{8}$

   Tenths: $\frac{20}{10}, \frac{30}{10}, \frac{40}{10}$

3. Number line drawn to represent the basketball court, partitioned into thirds, and labeled correctly;

   Day 1: $\frac{1}{3}$, Day 2: $\frac{2}{3}$, Day 3: $\frac{3}{3}$; $\frac{3}{3}$

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Lesson 27

Sprint

Side A

1.	10	12.	53	23.	17	34.	29
2.	0	13.	4	24.	27	35.	79
3.	20	14.	14	25.	57	36.	59
4.	1	15.	64	26.	77	37.	83
5.	11	16.	5	27.	8	38.	46
6.	31	17.	15	28.	18	39.	35
7.	2	18.	75	29.	28	40.	64
8.	12	19.	6	30.	68	41.	67
9.	42	20.	16	31.	48	42.	49
10.	3	21.	76	32.	9	43.	88
11.	13	22.	7	33.	19	44.	85

Side B

1.	0	12.	83	23.	17	34.	29
2.	10	13.	4	24.	27	35.	69
3.	20	14.	14	25.	47	36.	49
4.	1	15.	84	26.	67	37.	63
5.	11	16.	5	27.	8	38.	56
6.	61	17.	15	28.	18	39.	45
7.	2	18.	35	29.	28	40.	74
8.	12	19.	6	30.	58	41.	67
9.	72	20.	16	31.	38	42.	59
10.	3	21.	36	32.	9	43.	78
11.	13	22.	7	33.	19	44.	45

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Problem Set

1. 2, 2, bigger, less

   4, 4, smaller, more

2. $\frac{1}{2}$ of a candy bar, $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$

3. Explanations will vary.

4. 2 sixths; model drawn

5. Answers will vary.

Exit Ticket

1. 8 twelfths; $\frac{2}{3} = \frac{8}{12}$

2. Two models showing fractions equivalent to those in Problem 1 drawn and labeled

3. Answers will vary.

Homework

1. 1, 1, bigger

   3, 3, smaller

2. $\frac{1}{4}$

3. Explanations will vary.

4. 2 eighths; model drawn to support the answer

5. 16 slices; explanations will vary.

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Lesson 28

Sprint

Side A

1.	10	12.	63	23.	66	34.	9
2.	0	13.	4	24.	7	35.	19
3.	20	14.	14	25.	17	36.	29
4.	1	15.	74	26.	27	37.	79
5.	11	16.	5	27.	77	38.	59
6.	31	17.	15	28.	57	39.	62
7.	2	18.	75	29.	8	40.	54
8.	12	19.	6	30.	18	41.	76
9.	42	20.	16	31.	28	42.	58
10.	3	21.	26	32.	88	43.	83
11.	13	22.	46	33.	68	44.	67

Side B

1.	0	12.	73	23.	86	34.	9
2.	10	13.	4	24.	7	35.	19
3.	20	14.	14	25.	17	36.	29
4.	1	15.	44	26.	27	37.	89
5.	11	16.	5	27.	87	38.	69
6.	61	17.	15	28.	67	39.	72
7.	2	18.	85	29.	8	40.	63
8.	12	19.	6	30.	18	41.	45
9.	52	20.	16	31.	28	42.	37
10.	3	21.	26	32.	58	43.	79
11.	13	22.	66	33.	38	44.	46

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Problem Set

1. Models shaded correctly; 2 thirds circled
2. Models shaded correctly; 2 eighths circled
3. Models shaded correctly; 3 fourths circled
4. Models shaded correctly; 4 sixths circled
5. Models shaded correctly; 3 thirds circled
6. Kelly; tape diagrams drawn correctly
7. Becky; tape diagrams drawn correctly
8. Doll B, Doll A, Doll C; picture drawn

Exit Ticket

1. 2 thirds; explanations will vary.
2. Models drawn correctly for each fraction; 3 sevenths circled

Homework

1. Models shaded correctly; 1 half circled
2. Models shaded correctly; 2 fourths circled
3. Models shaded correctly; 4 fifths circled
4. Models shaded correctly; 5 sevenths circled
5. Models are shaded correctly; 4 fourths circled
6. Saleem; tape diagrams drawn correctly
7. Lily; tape diagrams drawn correctly

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Lesson 29

Pattern Sheet

8	16	24	32
40	48	56	64
72	80	40	48
40	56	40	64
40	72	40	80
48	40	48	56
48	64	48	72
48	56	48	56
64	56	72	56
64	48	64	56
64	72	72	48
72	56	72	64
72	64	48	72
56	72	48	64
72	56	48	64

Problem Set

1. Answer provided
2. $\frac{3}{4} > \frac{3}{8}$
3. $\frac{1}{4} < \frac{1}{2}$
4. $\frac{4}{4} > \frac{4}{6}$
5. a. <

   b. >

   c. >
6. Models drawn correctly; <
7. Models drawn correctly; >
8. Nicholas; model drawn correctly
9. Robbie; models drawn correctly

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Exit Ticket

1. >
2. Number lines drawn; explanations will vary.

Homework

1. $\frac{5}{12} < \frac{5}{6}$
2. $\frac{6}{6} > \frac{6}{12}$
3. $\frac{2}{4} > \frac{2}{9}$
4. $\frac{1}{2} > \frac{1}{6}$
5. a. <

   b. <

   c. >
6. Models drawn correctly; $\frac{7}{10} < \frac{7}{8}$
7. Models drawn correctly; $\frac{4}{6} > \frac{4}{9}$
8. Michello; model drawn correctly
9. Jahsir; models drawn correctly

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Lesson 30

Pattern Sheet

9	18	27	36
45	9	18	9
27	9	36	9
45	9	18	27
18	36	18	45
18	9	18	27
9	27	18	27
36	27	45	27
36	9	36	18
36	27	36	45
36	45	9	45
18	45	27	45
36	18	36	27
45	27	18	36
27	45	18	36

Homework

Answers will vary.

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