

About the OGAP Fraction Item Bank:

The OGAP Fraction Item Bank is organized by content topics. In addition to items by content files there is a pre-assessment for grades 3-6. This table of contents and the front page of the OGAP Fraction Framework provides information about the structures of each item in the OGAP Item Bank.

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| Addition and Subtraction | | | | | | | |
|--------------------------|------------------|------------------|---------------|-------------------|--------------------|---------------------------|----------------------------|
| Item ID | Number Types | Number Types | Visual Models | Compare and Order | Operations | Type of Operation Problem | Operation Numbers |
| ASC 1 | Unit fractions | | | Benchmark | Addition | Estimation | All proper fractions |
| ASC 2 | proper fractions | Unit fractions | | Benchmark | Addition | Estimation | All proper fractions |
| ASC 3 | proper fractions | Unit fractions | | Benchmark | Addition | Estimation | All proper fractions |
| ASC 4 | proper fractions | Unit fractions | | Benchmark | Addition | Estimation | All proper fractions |
| ASC 5 | proper fractions | Unit fractions | | Benchmark | Addition | Estimation | All proper fractions |
| ASC 6 | proper fractions | | | Benchmark | Addition | Estimation | All proper fractions |
| ASC 7 | proper fractions | | | | Addition | Exact answer | Proper fractions and mixed |
| ASC 8 | proper fractions | Unit fractions | | | Addition | Exact answer | Proper fractions and mixed |
| ASC 9 | proper fractions | | | | Addition | Exact answer | All proper fractions |
| ASC 10 | proper fractions | Unit fractions | | | Addition | Exact answer | All proper fractions |
| ASC 11 | proper fractions | Unit fractions | | | Multiple operation | Exact answer | All proper fractions |
| ASC 12 | proper fractions | Unit fractions | | | Multiple operation | Exact answer | All proper fractions |
| ASC 13 | Unit fractions | Unit fractions | | | Multiple operation | Exact answer | All proper fractions |
| ASC 14 | Mixed numbers | | | | Subtraction | Exact answer | All mixed numbers |
| ASC 15 | Mixed numbers | proper fractions | | | Subtraction | Exact answer | Proper fractions and mixed |
| ASC 16 | proper fractions | Unit fractions | | | Multiple operation | Exact answer | Proper fractions and whole |
| ASC 17 | Mixed numbers | | | | Addition | Exact answer | All mixed numbers |
| ASC 18 | Mixed numbers | | | | Addition | Exact answer | All mixed numbers |
| ASC 19 | Mixed numbers | | | | Addition | Exact answer | All mixed numbers |
| ASC 20 | Mixed numbers | | | | Addition | Exact answer | All mixed numbers |
| ASC 21 | Mixed numbers | | | | Addition | Exact answer | All mixed numbers |
| ASC 22 | Mixed numbers | | | | Addition | Exact answer | All mixed numbers |
| ASC 23 | Mixed numbers | | | | Subtraction | Exact answer | All mixed numbers |
| ASC 24 | Mixed numbers | | | | Subtraction | Exact answer | All mixed numbers |
| ASC 25 | Mixed numbers | | | | Subtraction | Exact answer | All mixed numbers |
| ASC 26 | Mixed numbers | | | | Subtraction | Exact answer | All mixed numbers |

Addition and Subtraction Continued

| | | | | | | | |
|--------|------------------|----------------|------|--|--------------------|------------------|----------------------------|
| ASM 1 | proper fractions | | Area | | Addition | Matching Problem | All proper fractions |
| ASM 2 | proper fractions | | | | Addition | Number Sense | All proper fractions |
| ASM 3 | Unit fractions | | | | Addition | Number Sense | All proper fractions |
| ASM 4 | Unit fractions | | | | Addition | Exact answer | All proper fractions |
| ASM 5 | Unit fractions | | | | Addition | Exact answer | All proper fractions |
| ASM 6 | Unit fractions | | | | Addition | Exact answer | All proper fractions |
| ASM 7 | proper fractions | | Area | | Addition | Number Sense | All proper fractions |
| ASI 1 | proper fractions | Unit fractions | | | Subtraction | Estimation | All proper fractions |
| ASI 2 | proper fractions | Unit fractions | | | Subtraction | Estimation | All proper fractions |
| ASI 3 | proper fractions | Unit fractions | | | Subtraction | Estimation | All proper fractions |
| ASI 4 | proper fractions | Unit fractions | | | Subtraction | Estimation | All proper fractions |
| ASI 5 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 6 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 7 | proper fractions | Unit fractions | | | Addition | Estimation | All proper fractions |
| ASI 8 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 9 | proper fractions | Unit fractions | | | Addition | Estimation | All proper fractions |
| ASI 10 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 11 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 12 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 13 | proper fractions | | | | Multiple operation | Estimation | All proper fractions |
| ASI 14 | proper fractions | | | | Multiple operation | Estimation | All proper fractions |
| ASI 15 | proper fractions | | | | Multiple operation | Estimation | All proper fractions |
| ASI 16 | proper fractions | | | | Multiple operation | Estimation | All proper fractions |
| ASI 17 | proper fractions | | | | Subtraction | Estimation | All proper fractions |
| ASI 18 | proper fractions | | | | Addition | Estimation | All proper fractions |
| ASI 19 | proper fractions | | | | Addition | Number Sense | Proper fractions and mixed |
| ASI 20 | proper fractions | | | | Addition | Number Sense | Proper fractions and mixed |
| ASI 21 | Mixed numbers | | Area | | Multiple operation | Estimation | All mixed numbers |
| ASI 22 | Unit fractions | | | | Addition | Exact answer | All proper fractions |
| ASI 23 | Unit fractions | | | | Addition | Exact answer | All proper fractions |
| ASI 24 | Unit fractions | | | | Addition | Exact answer | All proper fractions |

| Comparing and Ordering Fractions | | | | | | |
|----------------------------------|-------------------|--------------------|--------------------|-----------|----------------------------------|-------------------------------|
| Item | Type of Problem | Number Types | | Wholes | Compare and Order | Compare and Order |
| CB1 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CB2 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CB3 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CB4 | Compare and Order | proper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CB5 | Compare and Order | Improper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CB6 | Compare and Order | proper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CB7 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | Benchmark |
| CB8 | Compare and Order | proper fractions | | Same size | Benchmark | Extended unit fraction reason |
| CB9 | Compare and Order | proper fractions | | Same size | Benchmark | Extended unit fraction reason |
| CB10 | Compare and Order | proper fractions | | Same size | Benchmark | Common denominators |
| CB11 | Compare and Order | Improper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CB12 | Compare and Order | proper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CB13 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | |
| CB14 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CB15 | Compare and Order | proper fractions | Improper fractions | Same size | Benchmark | |
| CB16 | Compare and Order | proper fractions | Improper fractions | Same size | Benchmark | |
| CB17 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CB18 | Compare and Order | proper fractions | Improper fractions | Same size | Benchmark | |
| CB19 | Compare and Order | proper fractions | Improper fractions | Same size | | |
| CF1 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CF2 | Compare and Order | proper fractions | | Same size | Benchmark | Extended unit fraction reason |
| CF3 | Compare and Order | proper fractions | | Same size | Extended unit fraction reasoning | |
| CF4 | Compare and Order | proper fractions | | Same size | Benchmark | Common denominators |
| CF5 | Compare and Order | proper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CF6 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CF7 | Compare and Order | proper fractions | | Same size | Benchmark | Common denominators |
| CF8 | Compare and Order | proper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CF9 | Compare and Order | proper fractions | | Same size | Benchmark | Unit fraction reasoning |
| CF10 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | |
| CF11 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | |
| CF12 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | |
| CF13 | Compare and Order | proper fractions | | Same size | Common denominators | |

Comparing and Ordering Continued...

| | | | | | | |
|------|-------------------|--------------------|--------------------|-----------|----------------------------------|---------------------|
| CF14 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CF15 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CF16 | Compare and Order | proper fractions | | Same size | Benchmark | Common denominators |
| CF17 | Compare and Order | proper fractions | | Same size | Benchmark | |
| CF18 | Compare and Order | proper fractions | Improper fractions | Same size | Number sense | |
| CF19 | Compare and Order | proper fractions | | Same size | Number sense | |
| CF20 | Compare and Order | proper fractions | | Same size | Number sense | |
| CF21 | Compare and Order | proper fractions | | Same size | Number sense | |
| CF22 | Compare and Order | proper fractions | | Same size | Number sense | |
| CF23 | Compare and Order | Unit fractions | | Same size | Unit fraction reasoning | |
| OF1 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | Number sense |
| OF2 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | Number sense |
| OF3 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | Number sense |
| OF4 | Compare and Order | Unit fractions | | Same size | Unit fraction reasoning | |
| OF5 | Compare and Order | proper fractions | | Same size | Extended unit fraction reasoning | |
| OF6 | Compare and Order | proper fractions | | Same size | Unit fraction reasoning | |
| OF7 | Compare and Order | Mixed numbers | | Same size | Unit fraction reasoning | |
| OF8 | Compare and Order | Improper fractions | Mixed numbers | Same size | Unit fraction reasoning | |

| | | | Density | | | | |
|---------|---------------------|--------------------|-------------|-----------|-------------------|--------------------------------|-------------|
| Item ID | Type of Problem | Number Types | Models | Wholes | Compare and Order | Number line | Number Line |
| D1 | Density of Fraction | proper fractions | Number Line | Same size | | Identify points between points | Positive |
| D2 | Density of Fraction | proper fractions | Number Line | Same size | | Identify points between points | Positive |
| D3 | Density of Fraction | Mixed numbers | Number Line | Same size | | Identify points between points | Positive |
| D4 | Density of Fraction | proper fractions | Ruler | Same size | | Identify points between points | Ruler |
| D5 | Density of Fraction | proper fractions | Ruler | Same size | | Identify points between points | Ruler |
| D6 | Density of Fraction | Mixed numbers | Ruler | Same size | | Identify points between points | Ruler |
| D7 | Density of Fraction | proper fractions | | Same size | Number sense | | |
| D8 | Density of Fraction | Improper fractions | | Same size | Number sense | | |
| D9 | Density of Fraction | proper fractions | | | | | |
| D10 | Density of Fraction | proper fractions | | | | | |

Division

| New Item ID | Type of Problem | Operations | Operation Numbers | Types of Division | Type of Operation Problem |
|-------------|-----------------|---------------------|--|-------------------|-------------------------------|
| DI1 | Operations | Division | Proper fractions and whole numbers | | Estimation |
| DI2 | Operations | Division | All proper fractions | | Estimation |
| DI3 | Operations | Division | Proper fractions and whole numbers | | Estimation |
| DI4 | Operations | Division | Proper fractions and whole numbers | | Estimation |
| DI5 | Operations | Division | Proper fractions and whole numbers | | Estimation |
| DI6 | Operations | Division | Proper fractions and whole numbers | | Estimation |
| DI7 | Operations | Division | Multiple fraction types | | Estimation |
| DI8 | Operations | Multiple operations | Proper fractions and whole numbers | | Matching Problem Situation to |
| DI9 | Operations | Multiple operations | Proper fractions and whole numbers | | Matching Problem Situation to |
| DI10 | Operations | Multiple operations | All proper fractions | | Matching Problem Situation to |
| DI11 | Operations | Division | Multiple fraction types | | Number Sense |
| DI12 | Operations | | Multiple fraction types | | Number Sense |
| DP1 | Operations | Division | Proper fractions and whole numbers | Partitive | Exact answer |
| DP2 | Operations | Division | Whole number and mixed number/improper fractions | Partitive | Exact answer |
| DP3 | Operations | Division | | Partitive | Exact answer |
| DP4 | Operations | Division | Whole number and mixed number/improper fractions | Partitive | Exact answer |
| DP5 | Operations | Division | Whole number and mixed number/improper fractions | Partitive | Exact answer |
| DP6 | Operations | Division | | Partitive | Exact answer |
| DP7 | Operations | Division | Proper fractions and mixed numbers | Partitive | Exact answer |
| DP8 | Operations | Division | Proper fractions and mixed numbers | Partitive | Exact answer |
| DP9 | Operations | Division | Proper fractions and whole numbers | Partitive | Exact answer |
| DP10 | Operations | Division | All proper fractions | Partitive | Exact answer |
| DP11 | Operations | Division | All proper fractions | Partitive | Exact answer |
| DP12 | Operations | Division | All proper fractions | Partitive | Exact answer |
| DP13 | Operations | Division | All proper fractions | Partitive | Exact answer |

his is a sample of the content that will be included in the final product. This content is not for distribution outside of the partnership. Ongoing Assessment Objectives (OGAP) are funded by NSF.

Division continued

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|------|------------|----------|--|-----------|--------------|
| DP14 | Operations | Division | Proper fractions and whole numbers | Partitive | Exact answer |
| DP15 | Operations | Division | Proper fractions and whole numbers | Partitive | Exact answer |
| DQ1 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ2 | Operations | Division | Proper fractions and mixed numbers | Quotative | Exact answer |
| DQ3 | Operations | Division | Proper fractions and mixed numbers | Quotative | Exact answer |
| DQ4 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ5 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ6 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ7 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ8 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ9 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ10 | Operations | Division | Proper fractions and mixed numbers | Quotative | Exact answer |
| DQ11 | Operations | Division | All proper fractions | Quotative | Exact answer |
| DQ12 | Operations | Division | All proper fractions | Quotative | Exact answer |
| DQ13 | Operations | Division | Proper fractions and mixed numbers | Quotative | Exact answer |
| DQ14 | Operations | Division | Whole number and mixed number/improper fractions | Quotative | Exact answer |
| DQ15 | Operations | Division | Whole number and mixed number/improper fractions | Quotative | Exact answer |
| DQ16 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |
| DQ17 | Operations | Division | Proper fractions and whole numbers | Quotative | Exact answer |

Equivalence

| Item ID | Type of Problem | Number Types | Visual Models | Number of parts in whole with given model | Equivalence | Equivalence |
|---------|-----------------|-------------------------|---------------|---|------------------------------------|------------------------------------|
| E1 | Equivalence | proper fractions | Area | Factors of denominator | Repartitioning to show equivalence | Between proper and proper fraction |
| E2 | Equivalence | proper fractions | Area | Factors of denominator | Repartitioning to show equivalence | Between proper and proper fraction |
| E3 | Equivalence | proper fractions | Area | Factors of denominator | Repartitioning to show equivalence | Between proper and proper fraction |
| E4 | Equivalence | Multiple fraction t | Number Line | Factors of denominator | Repartitioning to show equivalence | Between proper and proper fraction |
| E5 | Equivalence | Multiple fraction t | Number Line | | Reasoning about equivalence | Between proper and proper fraction |
| E6 | Equivalence | Multiple fraction t | Number Line | | Reasoning about equivlance | Between fraction and percents |
| E7 | Equivalence | Multiple fraction t | Number Line | | Reasoning about equivlance | Between proper and proper fraction |
| E8 | Equivalence | Multiple fraction t | Number Line | | Reasoning about equivlance | Between proper and proper fraction |
| E9 | Equivalence | Multiple fraction types | | | Reasoning about equivlance | Between fraction and percents |
| E10 | Equivalence | proper fractions | | | Reasoning about equivalence | Between proper and proper fraction |
| E11 | Equivalence | proper fractions | | | Reasoning about equivalence | Identifying equivalent fractions |
| E12 | Equivalence | Multiple fraction t | Area | | Repartitioning to show equivalence | Reasoning about equivalence |
| E13 | Equivalence | proper fractions | Area | | Repartitioning to show equivalence | Between proper and proper fraction |
| E14 | Equivalence | proper fractions | Number Line | | Reasoning about equivalence | Between proper and proper fraction |
| E15 | Equivalence | proper fractions | Number Line | | Reasoning about equivalence | Between proper and proper fraction |
| E16 | Equivalence | proper fractions | | | Understanding of algorithm | |
| E17 | Equivalence | proper fractions | Area | | Repartitioning to show equivalence | Between proper and proper fraction |
| E18 | Equivalence | proper fractions | | | Understanding of algorithm | |
| E19 | Equivalence | Multiple fraction types | | | Understanding of algorithm | |
| E20 | Equivalence | proper fractions | Area | | Repartitioning to show equivalence | Between proper and proper fraction |
| E21 | Equivalence | proper fractions | Area | | Repartitioning to show equivalence | Between proper and proper fraction |
| E22 | Equivalence | proper fractions | Area | | Understanding of algorithm | |
| E23 | Equivalence | proper fractions | Area | | Reasoning about equivalence | |
| E24 | Equivalence | proper fractions | Area | | Reasoning about equivalence | |
| E25 | Equivalence | proper fractions | Area | | Understanding of algorithm | |
| E26A | Equivalence | proper fractions | Number Line | | Reasoning about equivalence | |
| E26B | Equivalence | proper fractions | Area | | Reasoning about equivalence | |

| Multiplication | | | | | |
|----------------|---------------|---|----------------|--|---------------------------|
| Item ID | Visual Models | Number of parts in whole with given model | Operations | Operation Numbers | Type of Operation Problem |
| MI1 | | | Multiplication | All proper fractions | Estimation |
| MI2 | | | Multiplication | Improper fractions and whole numbers | Estimation |
| MI3 | | | Multiplication | Proper fractions and whole numbers | Estimation |
| MI4 | | | Multiplication | Proper fractions and mixed numbers | Estimation |
| MI5 | | | Multiplication | All mixed numbers | Estimation |
| MI6 | | | Multiplication | All mixed numbers | Estimation |
| MI7 | | | Multiplication | All proper fractions | Estimation |
| MI8 | | | Multiplication | Proper fractions and whole numbers | Estimation |
| MI9 | | | Multiplication | Multiple fraction types | Estimation |
| MI10 | | | Multiplication | Multiple fraction types | Estimation |
| MI11 | | | Multiplication | Multiple fraction types | Estimation |
| MI12 | | | Multiplication | Multiple fraction types | Estimation |
| MI13 | | | Multiplication | Multiple fraction types | Estimation |
| MI14 | | | Multiplication | Multiple fraction types | Estimation |
| MI15 | | | Multiplication | Multiple fraction types | Estimation |
| MI16 | | | Multiplication | Multiple fraction types | Estimation |
| MI17 | | | Multiplication | Multiple fraction types | Estimation |
| MI18 | | | Multiplication | Multiple fraction types | Estimation |
| MI19 | | | Multiplication | Multiple fraction types | Number Sense |
| MI20 | | | Multiplication | Multiple fraction types | Number Sense |
| MI21 | | | Multiplication | Proper fractions and whole numbers | |
| MI22 | | | Multiplication | Proper fractions and whole numbers | |
| MC1 | | | Multiplication | Multiple fraction types | Exact answer |
| MC2 | | | Multiplication | All proper fractions | Exact answer |
| MC3 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC4 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC5 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC6 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC7 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC8 | | | Multiplication | Proper fractions and mixed numbers | Exact answer |
| MC9 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC10 | | | Multiplication | Whole number and mixed number/improper fractions | Exact answer |
| MC11 | | | Multiplication | Whole number and mixed number/improper fractions | Exact answer |
| MC12 | | | Multiplication | All mixed numbers | Exact answer |
| MC13 | | | Multiplication | Whole number and mixed number/improper fractions | Exact answer |
| MC14 | | | Multiplication | Proper fractions and whole numbers | Exact answer |

Multiplication continued.

| | | | | | |
|------|------|---------------------------|---------------------|------------------------------------|---|
| MC15 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC16 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC17 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC18 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC19 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC20 | | | Multiple operations | Multiple fraction types | Number Sense |
| MC21 | | | Multiple operations | Multiple fraction types | Exact answer |
| MC22 | | | Multiplication | Proper fractions and whole numbers | Exact answer |
| MC23 | | | Multiple operations | Multiple fraction types | Matching Problem Situation to operation |
| MC24 | | | Multiple operations | Multiple fraction types | Matching Problem Situation to operation |
| MA1 | Set | Multiples of denominators | | All proper fractions | Exact answer |
| MA2 | Set | Multiples of denominators | | All proper fractions | Exact answer |
| MA3 | Set | Multiples of denominators | | All proper fractions | Exact answer |
| MA4 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA5 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA6 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA7 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA8 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA9 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA10 | Area | Multiples of denominators | | All proper fractions | Exact answer |
| MA11 | Area | Multiples of denominators | | All proper fractions | Exact answer |

| Multistep Problems | | | | | |
|--------------------|-------------------------|------------------|----------------|----------------|---------------------------|
| Item ID | Number Types | Number Types | Operations | Operations | Type of Operation Problem |
| MS1 | Mixed numbers | Whole number | Multiplication | Addition | Exact answer |
| MS2 | proper fractions | Whole numbers | Addition | Multiplication | Exact answer |
| MS3 | proper fractions | Whole numbers | Multiplication | Addition | Exact answer |
| MS4 | Whole numbers | Mixed numbers | Multiplication | Subtraction | Exact answer |
| MS5 | Mixed numbers | Whole numbers | Addition | Division | Exact answer |
| MS6 | Multiple fraction types | Whole numbers | Addition | Multiplication | Exact answer |
| MS7 | Mixed numbers | proper fractions | Division | Subtraction | Exact answer |
| MS8 | Mixed numbers | Whole numbers | Division | Subtraction | Exact answer |

| Number Line | | | | | | | | | |
|-------------|-----------------|-----------------------|-----------------------|-------------|---|-----------|-------------------|--------------------------|-------------------|
| Item ID | Type of Problem | Number Types | Number Types | Models | Number of parts in whole with given model | Wholes | Compare and Order | Number line | Number Line |
| N1 | Number Line | Unit fractions | | Number Line | Equal to denominator | Same size | Partitioning | Negative to positive | |
| N2 | Number Line | proper fractions | | Number Line | Equal to denominator | Same size | Partitioning | Positive | |
| N3 | Number Line | Mixed numbers | | Number Line | Equal to denominator | Same size | Partitioning | Fraction and other point | |
| N4 | Number Line | Improper fractions | | Number Line | Multiples of denominators | Same size | Partitioning | Fraction and other point | |
| N5 | Number Line | Fraction equal to one | | Number Line | | Same size | Partitioning | Fraction and other point | |
| N6 | Number Line | Mixed numbers | | Number Line | Multiples of denominators | Same size | Partitioning | Fraction and other point | |
| N7 | Number Line | Mixed numbers | | Number Line | | Same size | Partitioning | Fraction and other point | |
| N8 | Number Line | proper fractions | Mixed numbers | Number Line | | Same size | Partitioning | Positive | Partitioned |
| N9 | Number Line | Fraction equal to one | Improper fractions | Number Line | Equal to denominator | Same size | Partitioning | Positive | |
| N10 | Number Line | proper fractions | Mixed numbers | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N11 | Number Line | proper fractions | Improper fractions | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N12 | Number Line | Unit fractions | | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N13 | Number Line | Unit fractions | proper fractions | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N14 | Number Line | proper fractions | Unit fractions | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N15 | Number Line | proper fractions | Mixed numbers | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N16 | Number Line | Mixed numbers | | Ruler | | Same size | Partitioning | Two or more units | Positive |
| N17 | Number Line | proper fractions | | Ruler | | Same size | Partitioning | Two or more units | Positive |
| N18 | Number Line | proper fractions | | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N19 | Number Line | Decimals | | Number Line | | Same size | Partitioning | Two or more units | Positive |
| N20 | Number Line | Unit fractions | Fraction equal to one | Number Line | | Same size | Partitioning | Negative to positive | Two or more units |
| N21 | Number Line | Negative fractions | Mixed numbers | Number Line | | Same size | Partitioning | Negative to positive | Two or more units |
| N22 | Number Line | Negative fractions | proper fractions | Number Line | | Same size | Partitioning | 0-1 | |
| N23 | Number Line | Negative fractions | Mixed numbers | Number Line | | Same size | Partitioning | Negative to positive | |
| N24 | Number Line | proper fractions | | Number Line | Factors of denominator | Same size | Partitioning | Two or more units | |
| N25 | Number Line | proper fractions | | Number Line | Factors of denominator | Same size | Partitioning | Two or more units | |

| Partitioning | | | | | |
|--------------|-----------------|------------------|--------|---|-----------------------|
| New Item ID | Type of Problem | Number Types | Models | Number of parts in whole with given model | Common Errors |
| P1 | Partitioning | Unit fractions | Area | | |
| P2 | Partitioning | proper fractions | Area | | |
| P3 | Partitioning | Unit fractions | Area | Multiples of denominators | |
| P4 | Partitioning | Unit fractions | Area | Multiples of denominators | |
| P5 | Partitioning | Unit fractions | Area | Factors of denominator | |
| P6 | Partitioning | Unit fractions | Area | | |
| P7 | Partitioning | | Area | | Non-congruent shading |
| P8 | Partitioning | | Area | | Non-congruent shading |
| P9 | Partitioning | | Area | | Non-congruent shading |
| P10 | Partitioning | Unit fractions | Set | Multiples of denominators | |
| P11 | Partitioning | Unit fractions | | | |
| P12 | Partitioning | Unit fractions | | | |
| P13 | Partitioning | Unit fractions | | | |

| Pre and Post Assessment | | | | | | | | | | | | |
|-------------------------|---------|-------------------|-------------------------|--------------------|-------------|----------------------------------|----------------------------------|-------------------|-------------------|----------------|---------------------------|-------------------|
| Grade | Item ID | Type of Problem | Number Types | Number Types | Models | Compare and Order | Compare and Order | Number line | Number Line | Operations | Type of Operation Problem | Types of Division |
| 3 | PA3.1 | Partitioning | proper fractions | | Area | Partitioning | | | | | | |
| 3 | PA3.2 | Number Line | Unit fractions | proper fractions | Number Line | Partitioning | | Two or more units | Positive | | | |
| 3 | PA3.3 | Operations | Unit fractions | | | Partitioning | | | | Division | Exact answer | Partitive |
| 3 | PA3.4 | Compare and Order | proper fractions | | | Benchmark | | | | | | |
| 3 | PA3.5 | Number Line | Unit fractions | | Number Line | Partitioning | | Two or more units | Positive | | | |
| 3 | PA3.6 | Partitioning | Unit fractions | | Area | Partitioning | | | | | | |
| | | | | | | | | | | | | |
| 4 | PA4.1 | Number Line | proper fractions | Unit fractions | Number Line | Partitioning | | Two or more units | | | | |
| 4 | PA4.2 | Equivalence | proper fractions | | Area | Unit fraction reasoning | Partitioning to show equivalence | | | | | |
| 4 | PA4.3 | Operations | proper fractions | | Area | | | | | Multiplication | Exact answer | |
| 4 | PA4.4 | Compare and Order | Unit fractions | proper fractions | | Unit fraction reasoning | Benchmark | | | | | |
| 4 | PA4.5 | Operations | proper fractions | Whole numbers | | | | | | Multiplication | Exact answer | |
| 4 | PA4.6 | Operations | proper fractions | | | | | | | Addition | Exact answer | |
| 4 | PA4.7 | Operations | proper fractions | | | | | | | Addition | Number Sense | |
| 4 | PA4.8 | Number Line | Multiple fraction types | | Number Line | Partitioning to show equivalence | Partitioning | Positive | Two or more units | | | |
| | | | | | | | | | | | | |
| 5 | PA5.1 | Operations | proper fractions | Whole numbers | | | | | | Multiplication | Estimation | |
| 5 | PA4.2 | Operations | proper fractions | | | | | | | Addition | Exact answer | |
| 5 | PA5.3 | Operations | proper fractions | | | | | | | Addition | Number Sense | |
| 5 | PA5.4 | Number Line | proper fractions | Improper fractions | Number Line | show | Partitioning | positive | Two or more units | | | |
| 5 | PA5.5 | Operations | proper fractions | Whole numbers | | | | | | Multiplication | Exact answer | |
| 5 | PA4.6 | Compare and Order | Improper fractions | Mixed numbers | | Unit fraction reasoning | | | | | | |
| 5 | PA5.7 | Operations | Mixed numbers | proper fractions | | | | | | Subtraction | Exact answer | |
| 5 | PA5.8 | Operations | proper fractions | Whole numbers | | | | | | Multiplication | Exact answer | |

Pre and Post Assessments continued.

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|---|-------|-------------------|--------------------|--------------------|--|----------------------------------|--|----------------------|-------------------|----------------|--------------|-----------|
| 6 | PA6.1 | Operations | proper fractions | Whole numbers | | | | | | Multiplication | Estimation | |
| 6 | PA6.2 | Operations | proper fractions | | | | | | | Addition | Exact answer | |
| 6 | PA6.3 | Operations | proper fractions | Whole numbers | | | | | | Addition | Number Sense | |
| 6 | PA6.4 | Number Line | proper fractions | Improper fractions | | Partitioning to show equivalence | | Negative to positive | Two or more units | | | |
| 6 | PA6.5 | Operations | Mixed numbers | proper fractions | | | | | | Division | Exact answer | Quotative |
| 6 | PA6.6 | Compare and Order | Improper fractions | proper fractions | | Unit fraction reasoning | | | | | | |
| 6 | PA6.7 | Compare and Order | proper fractions | Whole numbers | | | | | | Multiplication | Exact answer | |
| 6 | PA6.8 | Operations | proper fractions | Mixed numbers | | | | | | Subtraction | Exact answer | |