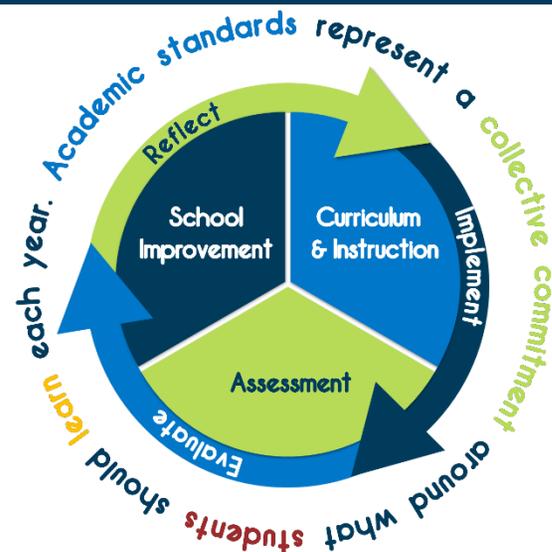# Samples to Success

Sample items provide valuable insight into how students engage with different texts, tasks, and contexts, highlighting the types of opportunities they need for success in the classroom. These items offer a shared reference point for understanding proficiency expectations, complementing the assessment's role in measuring learning. By analyzing items alongside performance data, educators can gain a deeper understanding of students' strengths and areas for growth. Students thrive in environments rich with diverse materials, challenges that vary in task type, and multiple avenues for demonstrating understanding. High-quality instruction, aligned with the learning goals, is the most effective way to support students' growth and prepare them for success.

The items featured in this rubric are a mix of items representative of those found on the Illinois Assessment of Readiness (IAR) and items appropriate for classroom instruction to support and build the skills measured on the IAR. The distinction between a student scoring proficient and above proficient on the IAR is primarily determined by the total points earned on items that require modeling and/or reasoning. Students who can effectively explain and demonstrate their thinking are most likely to earn these points.

Operations & Algebraic Thinking

4.OA.1 Expectation at Proficient: Interpret multiplicative comparisons as multiplication equations.	Below Proficient	Approaching Proficient	Proficient	Above Proficient
	Complete the statement to represent the equation: $5 \times 3 = 15$. 5 times as many as __3__ is 15.	Which equation correctly represents the statement "5 times as many as 3 is 15?" A. $15 \times 3 = 5$ B. $3 \times 5 = 15$ C. $5 + 3 = 15$ D. $5 + 5 + 3 = 15$	Which statements can be used to represent the equation $5 \times 3 = 15$? Select the **two** correct answers. A. The number 15 is 5 shared equally with 3. B. The number 15 is 5 more than 3. C. The number 15 is 5 times as many as 3. D. Joe is 15 years old. Cindy is 5 years old. Their ages can be divided by 3. E. Joe is 15 years old. Cindy is 5 years old. Joes is 3 times as old as Cindy. F. Joe is 15 years old. Cindy is 5 years old. Cindy is 3 years younger than Joe.	Create **two** different equations that represent the following situation: "Darius has 3 packages of trading cards. Each package contains 5 trading cards." **Equations examples:** 3×5=x 5×3=x How many trading cards does Darius have? Answer: 15

Operations & Algebraic Thinking

4.OA.2 Expectation at Proficient: Identify and solve multiplicative comparison word problems that require multiplication or division.	Below Proficient	Approaching Proficient	Proficient	Above Proficient
	A slice of pizza costs $3. Marco buys 6 slices of pizza. Which value represents the amount of money, in dollars, Marco spends on 6 slices of pizza? A. 3 B. 18 C. 9 D. 2	A slice of pizza costs $3. Marco buys 6 slices of pizza. Which equation can be used to find the amount of money, in dollars, Marco spends? A. $6 - 3 = 3$ B. $6 \times 3 = 18$ C. $6 + 3 = 9$ D. $6 \div 3 = 2$	A slice of pizza costs $3. Marco buys 6 slices of pizza. Which equation can be used to find the amount of money, in dollars, Marco spends? A. $6 - 3 = ?$ B. $6 \times 3 = ?$ C. $6 + 3 = ?$ D. $6 \div 3 = ?$	A slice of pizza costs $3. A whole pizza costs $10. Marco is buying pizza for a class of 4th graders. He buys 3 whole pizzas and 2 slices of pizza. What is the total amount of money, in dollars, Marco spends? A. $13 B. $30 C. $36 D. $39

Operations & Algebraic Operations

4.OA.3 **Expectation at Proficient:**	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Solve multistep word problems with whole numbers using all four operations. Interpret remainders in the context of problems. Represent word problems with equations that include letters for unknowns. Assess the reasonableness of their solution using estimation and mental computation strategies.	Ms. Martin bakes 200 cookies on Monday and 150 cookies on Tuesday. On Wednesday, she divides the cookies evenly into 10 boxes. How many cookies are in each box? A. 30 B. 35 C. 330 D. 350	Ms. Martin bakes 100 cookies on Monday, 60 cookies on Tuesday, and 40 cookies on Wednesday. On Thursday, she serves each of the 4th grade students 3 cookies. What is the highest number of students she can serve? A. 66 B. 67 C. 197 D. 600	Ms. Martin bakes 200 cookies and 60 cupcakes for a school fair. She packs 12 cookies and 3 cupcakes into boxes to sell. What is the maximum number of boxes she can fill with the cookies and cupcakes she has? Answer: 16	Ms. Martin bakes 200 cookies and 60 cupcakes for a school fair. She packs 12 cookies and 3 cupcakes into boxes to sell. Ms. Martin fills as many boxes as possible with the cookies and cupcakes she has. Explain how Ms. Martin can determine the number of cookies and cupcakes she will have leftover. The student response should include a thorough explanation of their work as well as the answer: 16.

Operations & Algebraic Operations

4.OA.4 **Expectation at Proficient:**	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Write factor pairs for whole numbers between 1 and 100. Recognize and determine whether a given whole number is a multiple of a one-digit number.	Which numbers are multiples of 3? Select the **two** correct answers. A. 7 B. 9 C. 10 D. 12 E. 14	Which pair of numbers is a factor pair of 32? A. 3 and 12 B. 4 and 8 C. 5 and 6 D. 7 and 4	Which pairs of numbers are factor pairs of 32? Select the **three** correct answers. A. 1 and 32 B. 2 and 16 C. 3 and 11 D. 4 and 8 E. 5 and 6	A school is organizing a fundraising event and needs to arrange the participants into teams. The number of participants is 72. Each team must have at least 5 participants. Explain a way to organize the participants into as many teams as possible. The student response should explain a method to determine that 14 teams can be formed with 2 participants left over.

Operations & Algebraic Operations

4.OA.5 Expectation at Proficient:	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Generate number and shape patterns following given rules. Identify repetition within number and shape patterns that are not explicitly mentioned in the rule.	A number pattern follows the rule "multiply by 2." Which set of numbers could represent 4 numbers in this pattern? A. 2, 4, 6, 8 B. 2, 22, 222, 2222 C. 2, 4, 8, 16 D. 2, 2.2, 2.4, 2.6	A number pattern follows the rule "multiply by 2." The first 3 numbers are given. What is the 4th number in the pattern? 3, 6, 12 __24__	A number pattern follows the rule "multiply by 2." The first number in the pattern is 4. What is the third number in the pattern? Answer: 16	The first 5 numbers of a pattern are shown. 3, 7, 15, 31, 63, … Explain a rule to produce the pattern. Possible answer: multiply by 2, add 1

Number & Operations in Base Ten

4.NBT.1 Expectation at Proficient:	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right for whole numbers less than 1,000,000.	The value of the 3 in 3,000 is (more than or less than) the value of the 3 in 300?	The value of the 3 in 3,000 is how many times the value of the 3 in 300? A. 10 B. 100 C. 1,000 D. 10,000	The value of the 3 in 35,608 is how many times the value of the 3 in 9,371? Answer: 100	The value of the 3 in 9,371 is how many times the value of the 3 in 35,608? Answer: 0.01

Number & Operations in Base Ten

4.NBT.2	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Complete the comparison using $=, <,$ or $>$. 5,730 _____ 5,703 Answer: >	Which representation has the same value as 3 thousands, 5 tens, and 8 ones? A. 358 B. 3058 C. 3508 D. 3580	Which comparison is true? A. $365 <$ three hundred fifty B. $600 + 50 + 2 < 625$ C. $7053 > 700 + 50 + 3$ D. five thousand two $>$ 5,200	Complete the table with the number name and expanded form of the number 3,602. <table><tr><td>Number Name</td><td>three thousand six hundred and two</td></tr><tr><td>Base-ten Numeral</td><td>3,602</td></tr><tr><td>Expanded Form</td><td>$3000 + 600 + 2$</td></tr></table>

Number & Operations in Base Ten

4.NBT.3	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Use place value to round multi-digit whole numbers to any place limited to whole numbers less than or equal to 1,000,000.	What is 326,041 rounded to the nearest tens? A. 320,000 B. 330,000 C. 326,000 D. 326,040	What is 326,041 rounded to the nearest tens? Answer: 326,040	Round each number to the nearest thousand. Which numbers round to 35,000? Select the **two** correct answers. A. 34,105 B. 34, 430 C. 34,900 D. 35,105 E. 35, 530	Explain how place value is used to round 805,682 to the ten-thousands place? The student response should include that the 5 in the thousands place rounds the 0 to a 1 in the ten-thousands place.

Number & Operations in Base Ten

4.NBT.4	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Accurately and fluently add and subtract multi-digit whole numbers using the standard algorithm for numbers less than or equal to 1,000,000.	Add. $$3,520 + 2,072$$ Answer: 5,592	What is the value of the expression shown? $$5,736 - 4,859$$ A. 737 B. 757 C. 877 D. 897	What is the value of the expression shown? $$5,736 - 4,859$$ Answer: 877	A soccer club currently has $5,736. It wishes to spend $4,859 on equipment and $875 on new uniforms. Explain if the soccer club has enough money. The student response should include a total after expenses are deducted. The soccer club has enough money, with $2 left over.

Number & Operations in Base Ten

4.NBT.5	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Multiply a whole number of up to four digits (0 - 9,999) by a one-digit whole number. Multiply two two-digit numbers (10 - 99). Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	What is the value of the expression shown? $$50 \times 3$$ A. 53 B. 80 C. 150 D. 800	What is the value of the expression shown? $$57 \times 3$$ Answer: 171	What is the value of the expression shown? $$57 \times 32$$ Answer: 1824	What is the value of the expression shown? $$57 \times 32$$ Create a model to illustrate the product. The student response should include a complete rectangular array or other multiplication model, as well as the product: 1824.

Number & Operations in Base Ten

4.NBT.6 Expectation at Proficient:	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Find whole number quotients and remainders with up to three and four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.

Illustrate and explain the calculation by using equations, rectangular arrays, and area models. | Divide. What is the value of the expression shown?

$$360 \div 3$$

A. 120

B. 357

C. 363

D. 1080 | What is the value of the expression shown?

$$3360 \div 3$$

Answer: 1120 | A principal purchased a total of 3,360 pens. The principal gave an equal number of pens to 8 classes.

How many pens did each class receive?

Answer: 420 | A principal purchased a total of 3,360 pens. The principal gave an equal number of pens to 8 classes.

Explain how to determine the number of pens each class received.

The student response should include an explanation of how division can be used determine the answer: 420. |

Number & Operations - Fractions

4.NF.1 Expectation at Proficient:	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Identify and generate equivalent fractions by multiplying numerator and denominator by the same number, using visual models and denominators from the given set limited to fractions with a denominator of 2, 3, 4, 5, 6, 8, 10, 12 and 100.	What fraction is equivalent to $\frac{1}{2}$?

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

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

C. $\frac{3}{4}$

D. $\frac{4}{4}$ | Complete the model shown so that the shaded part represents a fraction that is equivalent to $\frac{2}{6}$.
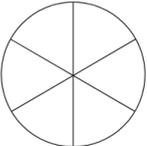
Answer: shade 2 sections | Complete the model shown so that the shaded part represents a fraction that is equivalent to $\frac{1}{3}$.
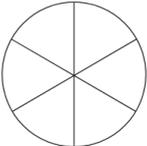
Answer: shade 2 sections | Generate 2 models to represent each fraction.

$$\frac{2}{3} \qquad \frac{3}{5} \qquad \frac{2}{1}$$

The student response should include models with different numbers of sections. For example, a model with 3 sections and another with 6 sections for the fraction $\frac{2}{3}$. |

Number & Operations - Fractions

4.NF.2 **Expectation at Proficient:**	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Compare two fractions with different numerators and different denominators. a. Recognize that comparisons are valid only when the two fractions refer to the same size whole. b. Record the results of comparisons with symbols >, =, or <, limited to fractions with a denominator of 2, 3, 4, 5, 6, 8, 10, 12 and 100.	Of the students at Washington Elementary, $\frac{1}{4}$ play soccer and $\frac{3}{4}$ play basketball. Do more students play soccer or basketball? Answer: basketball	Of the students at Washington Elementary $\frac{2}{5}$ take music lessons. Which fraction is equivalent to the fraction of students who take music lessons at Washington Elementary? A. $\frac{1}{5}$ B. $\frac{2}{10}$ C. $\frac{3}{5}$ D. $\frac{4}{10}$	Of the students at Washington Elementary, $\frac{1}{12}$ play soccer, $\frac{3}{8}$ play basketball, $\frac{2}{5}$ take music lessons, and $\frac{2}{6}$ take dance lessons. Order the fractions from least to greatest. Answer: $\frac{1}{12}, \frac{2}{6}, \frac{3}{8}, \frac{2}{5}$	Of the students at Washington Elementary, $\frac{1}{12}$ play soccer, $\frac{3}{8}$ play basketball, $\frac{2}{5}$ take music lessons, and $\frac{2}{6}$ take dance lessons. Using the symbols >, =, and <, write **three** true statements that compare the fractions. Sample answers: $\frac{1}{12} < \frac{2}{6}$, $\frac{2}{5} > \frac{3}{8}$, $\frac{2}{6} < \frac{3}{8}$

Number & Operations - Fractions

4.NF.3a **Expectation at Proficient:**	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Add and subtract fractions with common denominators.	Jason, and Kendra eat some pizza. Jason ate $\frac{3}{10}$ of the pizza, and Kendra ate $\frac{4}{10}$ of the pizza. What fraction represents the amount of pizza they are altogether? A. $\frac{1}{10}$ B. $\frac{7}{10}$ C. $\frac{7}{100}$ D. $\frac{12}{100}$	Jason, John, and Kendra eat some pizza. Jason ate $\frac{3}{10}$ of the pizza, John ate $\frac{2}{10}$ of the pizza, and Kendra ate $\frac{4}{12}$ of the pizza. What fraction represents the amount of pizza they ate altogether? Answer: $\frac{9}{10}$	Jason, John, Kendra, and Dana ate one full pizza altogether. Jason ate $\frac{3}{12}$ of the pizza, and John and Kendra each ate $\frac{2}{12}$ of the pizza. How much pizza did Dana eat? Answer: $\frac{5}{12}$	Jason, John, Kendra, and Dana ate one full pizza altogether. Jason ate $\frac{3}{12}$ of the pizza, and John and Kendra each ate $\frac{2}{12}$ of the pizza. How much more pizza did Dana eat than Jason? Answer: $\frac{2}{12}$

Number & Operations - Fractions

4.NF.3b

Expectation at Proficient:

Decompose a fraction into a sum of fractions with the same denominator in more than one way.

Below Proficient	Approaching Proficient	Proficient	Above Proficient
Which expression is equivalent to $\frac{3}{4}$? A. $\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ C. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ D. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$	Which expression is equivalent to $\frac{7}{8}$? A. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ B. $\frac{2}{8}+\frac{2}{8}+\frac{2}{8}+\frac{1}{8}$ C. $\frac{8}{8}+\frac{3}{8}+\frac{4}{8}$ D. $\frac{1}{8}+\frac{2}{8}+\frac{3}{8}+\frac{4}{8}$	Which expressions are equivalent to $1\frac{7}{12}$? Select the **three** correct answers. A. $\frac{12}{12}+\frac{2}{12}+\frac{2}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}$ B. $1+\frac{2}{12}+\frac{5}{12}+\frac{5}{12}$ C. $\frac{2}{12}+\frac{2}{12}+\frac{2}{12}+\frac{2}{12}$ D. $1+\frac{3}{12}+\frac{3}{12}+\frac{1}{12}$ E. $\frac{12}{12}+\frac{6}{12}+\frac{1}{12}$	Jada, Erik, and Rita each wrote an expression. Jada: $\frac{12}{12}+\frac{2}{12}+\frac{2}{12}+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}$ Erik: $1+\frac{2}{12}+\frac{3}{12}+\frac{4}{12}$ Rita: $\frac{6}{12}+\frac{5}{12}+\frac{4}{12}+\frac{2}{12}+\frac{1}{12}+\frac{1}{12}$ Two of the students wrote expressions that are equivalent. Which two students wrote equivalent expressions? Explain how you know. Answer: Jada and Rita, both represent $1\frac{7}{12}$.

Number & Operations - Fractions

4.NF.3c

Expectation at Proficient:

Add and subtract mixed numbers with like denominators.

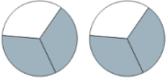| Below Proficient	Approaching Proficient	Proficient	Above Proficient
Add. Which value represents the sum? $$4\frac{1}{4}+2\frac{2}{4}$$ A. $6\frac{3}{4}$ B. $6\frac{3}{8}$ C. $2\frac{3}{4}$ D. $2\frac{3}{8}$	Add. $$4\frac{3}{5}+2\frac{1}{5}$$ Answer: $6\frac{4}{5}$	Subtract. $$4\frac{3}{5}-2\frac{1}{5}$$ Answer: $2\frac{2}{5}$	What is $$4\frac{3}{5}+2\frac{1}{5}-1\frac{2}{5}?$$ Answer: $5\frac{2}{5}$

Number & Operations - Fractions

4.NF.3d	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.	Joseph uses red, white, and blue paint to make a poster. He uses $\frac{4}{5}$ tube of red paint, $\frac{2}{5}$ tube of white paint, and $\frac{1}{5}$ tube of blue paint. Which equation represents the total amount of red, white, and blue paint Joseph uses? A. $\frac{4}{5} + \frac{2}{5} + \frac{1}{5} = \frac{7}{15}$ B. $\frac{4}{5} + \frac{2}{5} + \frac{1}{5} = \frac{7}{5}$ C. $\frac{4}{5} + \frac{2}{5} + \frac{1}{5} = \frac{8}{15}$ D. $\frac{4}{5} + \frac{2}{5} + \frac{1}{5} = \frac{8}{5}$	Joseph uses red, white, and blue paint to make a poster. He uses $\frac{4}{5}$ tube of red paint, $\frac{2}{5}$ tube of white paint, and $\frac{1}{5}$ tube of blue paint. How much red, white, and blue paint does Joseph use altogether? Answer: $\frac{7}{5}$	Joseph uses red, white, and blue paint to make a poster. He uses $\frac{4}{5}$ tube of red paint, $\frac{2}{5}$ tube of white paint, and $\frac{1}{5}$ tube of blue paint. How much more red paint does Joseph use than white and blue paint combined? Answer: $\frac{1}{5}$	Joseph and Hannah each use red, white, and blue paint to make a poster. Joseph uses $\frac{4}{5}$ tube of red paint, $\frac{2}{5}$ tube of white paint, and $\frac{1}{5}$ tube of blue paint. Hannah uses $\frac{3}{5}$ tube of each color. Who uses more paint? Explain how you determined your answer. Answer: Hannah. Hannah uses $\frac{9}{5}$ tube while Joe uses only $\frac{7}{5}$ tube. Student work/explanation should also be included.

Number & Operations - Fractions

4.NF.4a	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Identify a fraction $\frac{a}{b}$ as a multiple of a unit fraction $\frac{1}{b}$. In general, $\frac{a}{b}$ = a x $\frac{1}{b}$. (Limited to fractions with a denominator of 2, 3, 4, 5, 6, 8, 10, 12 and 100.)	The model shows 3 circles. Each circle is divided into 2 equal parts with 1 part shaded to represent a faction of a whole. Use the model to help answer the question. What is $3 \times \frac{1}{2}$? A. $\frac{1}{2}$ B. $\frac{3}{2}$ C. $\frac{1}{3}$ D. $\frac{2}{3}$	What is $9 \times \frac{1}{10}$? A. $\frac{9}{10}$ B. $\frac{90}{10}$ C. $\frac{9}{100}$ D. $\frac{90}{1000}$	Which expression is equivalent to $\frac{9}{10}$? A. $9 \times \frac{1}{10}$ B. $9 \times \frac{1}{100}$ C. $10 \times \frac{1}{9}$ D. $10 \times \frac{1}{90}$	Sarah is baking cookies. Each batch of cookies requires $\frac{1}{3}$ cup of flour. Sarah wants to bake 5 batches of cookies. Sarah has 2 cups of flour. Does Sarah have enough flour to make 5 batches? Explain how you know. Yes, 5 batches will require $\frac{1}{3} \times 5 = \frac{5}{3} = 1\frac{2}{3}$ cups of flour. Since Sarah has 2 full cups, she will have enough with $\frac{1}{3}$ cup left over.

Number & Operations - Fractions

4.NF.4b Expectation at Proficient: Identify a multiple of $\frac{a}{b}$ as a multiple of a unit fraction $\frac{1}{b}$ and use this understanding to multiply a whole number by a fraction. In general, n x $\frac{a}{b} = \frac{n \times a}{b}$. (Limited to fractions with a denominator of 2, 3, 4, 5, 6, 8, 10, 12 and 100.)	Below Proficient	Approaching Proficient	Proficient	Above Proficient
	The model shows 2 circles. Each circle is divided into 3 equal parts with 2 parts shaded to represent a faction of a whole. Use the model to help answer the question. What is $2 \times \frac{2}{3}$? A. $\frac{4}{2}$ B. $\frac{4}{3}$ C. $\frac{2}{5}$ D. $\frac{2}{6}$	What is $3 \times \frac{2}{8}$? A. $\frac{5}{8}$ B. $\frac{6}{8}$ C. $\frac{2}{11}$ D. $\frac{2}{24}$	Which expression is equivalent to $\frac{6}{8}$? A. $3 \times \frac{2}{8}$ B. $6 \times \frac{4}{8}$ C. $4 \times \frac{2}{8}$ D. $3 \times \frac{3}{8}$	Ariel incorrectly multiplied $3 \times \frac{2}{8}$. Her work is shown. Step 1: $3 \times \frac{2}{8}$ Step 2: $\frac{3 \times 2}{3 \times 8} = \frac{6}{24}$ Explain Ariel's error. What is $3 \times \frac{2}{8}$? The student response should explain the error in multiplying the denominator by 3. The correct product is $\frac{6}{8}$.

Number & Operations - Fractions

4.NF.4c Expectation at Proficient: Solve word problems involving multiplication of a whole number by a fraction. (Limited to fractions with a denominator of 2, 3, 4, 5, 6, 8, 10, 12 and 100.)	Below Proficient	Approaching Proficient	Proficient	Above Proficient
	A group of 5 friends is planning a hike. Each friend will need $\frac{1}{2}$ gallon of water to drink during the hike. Which fraction represents the number of gallons of water the group will need for the hike? A. $\frac{2}{5}$ B. $\frac{5}{2}$ C. $\frac{2}{10}$ D. $\frac{5}{10}$	A group of 5 friends is planning a hike. Each friend will need $\frac{1}{2}$ gallon of water to drink during the hike. How many gallons of water will the group need for the hike? Answer: $\frac{5}{2}$	A group of 5 friends is planning a hike. Each friend will need $\frac{5}{8}$ gallon of water to drink during the hike. How many gallons of water will the group need for the hike? Answer: $\frac{25}{8}$	A group of 12 friends is planning a hike. Each friend will need $\frac{7}{10}$ gallon of water to drink during the hike. Each friend will need $\frac{3}{8}$ cup of snack mix. How many gallons of water will the group need for the hike? Answer: $\frac{84}{10}$ How many cups of snack mix will the group need for the hike? Answer: $\frac{36}{8}$

Number & Operations - Fractions

4.NF.5 **Expectation at Proficient:**	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Express a fraction with denominator 10 as an equivalent fraction with denominator 100 and use this technique to add two fractions with respective denominators 10 (tenths) and 100 (hundredths). For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.	Create an equivalent fraction. Which value completes the equation? $$\frac{}{10} = \frac{40}{100}$$ A. 4 B. 10 C. 40 D. 400	Create an equivalent fraction. What value completes the equation? $$\frac{}{10} = \frac{40}{100}$$ Answer: 4	An expression is shown. $$\frac{4}{10} + \frac{8}{100}$$ What is the value of the expression? A. $\frac{12}{10}$ B. $\frac{48}{10}$ C. $\frac{12}{100}$ D. $\frac{48}{100}$	An expression is shown. $$\frac{4}{10} + \frac{8}{100} - \frac{30}{1000}$$ What is the value of the expression? Answer: $\frac{450}{1000}$

Number & Operations - Fractions

4.NF.6 **Expectation at Proficient:**	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Use decimal notation for fractions with denominators 10 (tenths) or 100 (hundredths) and locate these decimals on a number line.	Plot the point 0.3 on the number line. Answer: A point should be plotted on the 3rd tick mark to the right of 0.	Plot the point 0.3 on the number line. Answer: A point should be plotted on the 3rd tick mark to the right of 0.	Plot the point 0.27 on the number line. Answer: A point should be plotted between the 2nd tick mark to the right of 0 and the 3rd tick mark to the right of 0, a bit closer to the 3rd tick mark.	Plot the point 0.27 and 0.72 on the number line. Answer: A point should be plotted between the 2nd and 3rd tick mark to the right of 0, a bit closer to the 3rd tick mark. Another point should be plotted between the 7th and 8th tick mark, closer to the 7th.
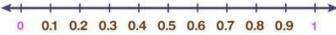
Number & Operations - Fractions

4.NF.7	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Compare two decimals to hundredths by reasoning about their size. Understand that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <.	Which comparison is correct? A. $6.02 = 6.22$ B. $7.60 = 7.6$ C. $3.44 = 3.044$ D. $5.3 = 5.03$	Which comparison is correct? A. $4.65 < 4.6$ B. $0.83 < 0.38$ C. $3.04 > 3.40$ D. $78.2 > 78.02$	Which comparisons are correct? Select the **two** correct answers. A. $4.65 < 4.6$ B. $3.04 > 3.40$ C. $7.60 = 7.6$ D. $0.83 < 0.38$ E. $78.2 > 78.02$ F. $6.02 = 6.22$	Complete each comparison with the symbol <, =, or >. 4.65 ___4.6 78.2___78.02 602.8___602.80 Explain how you would clarify your process for determining your answers to a student who is having difficulty comparing decimals. **Answers:** >, >, = **The student response should include an understanding of comparing place value.**

Measurement & Data

4.MD.1	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Identify relative sizes of measurement units within one system of units. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	Four lengths, in feet, are shown in the table. Select the equivalent length, in inches, for each measurement. Choices: 30 ft, 36 ft, 40 ft, 48 ft, 60 ft	Three lengths, in feet, are shown in the table. Write the equivalent length, in inches, for each measurement.	Mr. Jots measures the lengths of 3 desktops in his classroom. Some of the lengths are measured in feet and one is measured in inches. The measurements are recorded in the table shown. Complete the table with the correct unit.	Generate a conversion table for feet and inches. (Sample table included.) Explain how to convert a measurement in feet into a measurement in inches. The student response should include an explanation of how to convert between feet and inches.

Below Proficient table:

Feet	Inches
2 ft	24 in.
3 ft	36 in.
4 ft	48 in.
5 ft	60 in.

Approaching Proficient table:

Feet	Inches
3 ft	36 in.
4 ft	48 in.
5 ft	60 in.

Proficient table:

Table	Feet	Inches
Table #1	3 ft	36 in.
Table #2	4 ft	48in.
Table #3	5 ft	60 in.

Above Proficient table:

Feet	Inches
2 ft	24 in.
3 ft	36 in.
4 ft	48 in.

		Measurement & Data		

4.MD.2	**Below Proficient**	**Approaching Proficient**	**Proficient**	**Above Proficient**
Expectation at Proficient: Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	Trevor had a piece of string that was 24 inches long. He cut off a 23.5-inch piece. How long, in inches, is the remaining piece of string? Answer: 0.5 Place a point on the number line to show the length, in inches, of the remaining string. Answer: A point should be plotted on 0.5.	Trevor had a piece of string that was 2 **feet** long. He cut off a 23.5-inch piece. How long, in inches, was the original piece of string? Answer: 24 How long, in inches, is the remaining piece of string? Answer: 0.5 Place a point on the number line to show the length, in inches, of the remaining string. Answer: A point should be plotted on 0.5.	Trevor had a piece of string that was 2 feet long. He cut off a $22\frac{1}{4}$-inch piece. Place a point on the number line to show the length, in inches, of the remaining string. **Number of Inches** Answer: A point should be plotted above $1\frac{3}{4}$.	Trevor had a piece of string that was $2\frac{1}{2}$ feet long. He cut off a $28\frac{3}{4}$ inch piece. Place a point on the number line to show the length, in inches, of the remaining string. **Number of Inches** Explain your work. Answer: A point should be plotted above $1\frac{1}{4}$. The student response should include a thorough explanation of the work used to determine the answer.
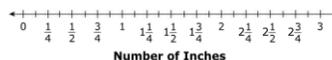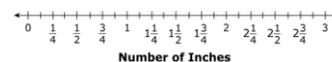
Measurement & Data

4.MD.3	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Apply the area and perimeter formulas for rectangles in mathematical problems and problems in real-world contexts including problems with unknown side lengths.	A rectangle is shown. The length of the rectangle is 3 meters. The width of the rectangle is 2 meters. What is the area, in square meters, of the rectangle? A. 5 B. 6 C. 8 D. 9	The area of the rectangular sandbox at Dave's school is 108 square feet. The sandbox has a width of 9 feet as shown. Sandbox 9 feet What is length, in feet, of the sandbox? Answer: 12	The area of the rectangular sandbox at Dave's school is 108 square feet. The sandbox has a width of 9 feet as shown. Sandbox 9 feet What is the perimeter, in feet, of the sandbox? Answer: 42	A rectangle has an area of 24 square inches and a perimeter of 22 inches. What is the length and the width, in inches, of the rectangle? Answer: 8 x 3 Explain the difference between the area and perimeter formulas for rectangles. The student response should include that the area formula for a rectangle (length × width) calculates the total space inside the rectangle, while the perimeter formula (2 × length + 2 × width) calculates the total distance around the rectangle.
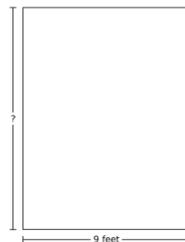
Measurement & Data

4.MD.4	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Solve problems involving addition and subtraction of fractions by using information presented in line plots.	Leonard measures the length of his used crayons. The lengths, in inches, of the crayons are shown on the line plot. **Crayon Lengths (inches)** How many crayons measure 2 inches? Answer: 3	Leonard measures the length of his used crayons. The lengths, in inches, of the crayons are shown on the line plot. **Crayon Lengths (inches)** Three of the crayons are the same length. What is the length, in inches, of each of the three crayons? Answer: 2	Leonard measures the length of his used crayons. The lengths, in inches, of the crayons are shown on the line plot. **Crayon Lengths (inches)** Leonard lines the crayons up end-to-end. What is the total length, in inches of the line of crayons? Answer: 21	Leonard measures the length of his used crayons. The lengths, in inches, of the crayons are shown on the line plot. **Crayon Lengths (inches)** Leonard adds 4 more crayons to the line plot. The lengths, in inches, of the added crayons are $\frac{3}{4}, 1\frac{1}{4}, 1\frac{1}{2}, 2\frac{3}{4}$. Update the line plot with the added crayons lengths. The updated line plot should show the current X's as well as the additional 4 X's.
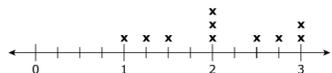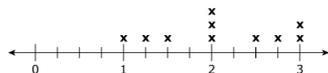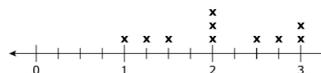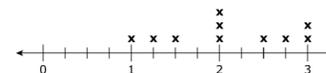
Measurement & Data

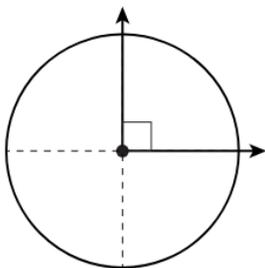| 4.MD.5	Below Proficient	Approaching Proficient	Proficient	Above Proficient

Expectation at Proficient:

Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

a. Identify an angle is measured with reference to a circle with its center at the common endpoint of the rays.

b. Identify an angle that turns through n one-degree angles is said to have an angle measure of n degrees.

Below Proficient

An angle is shown.

The angle turns through $\frac{90}{360}$ of the circle and makes up $\frac{1}{4}$ of the circle. Which value best represents the angle measure, in degrees?

A. 1

B. 4

C. 90

D. 360

Approaching Proficient

An angle is shown.
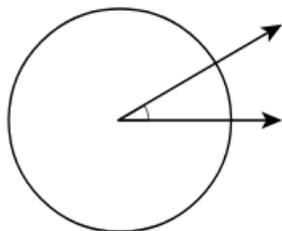
The angle turns through $\frac{30}{360}$ of the circle. Which value best represents the angle measure, in degrees?

A. 1

B. 30

C. 180

D. 360

Proficient

An angle is shown.
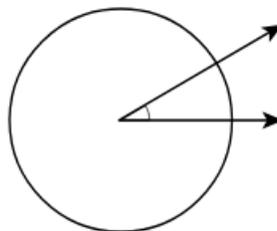
Which value best represents the angle measure, in degrees?

A. 30

B. 90

C. 180

D. 270

Above Proficient

An angle is shown.
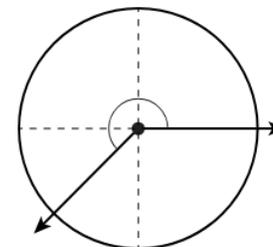
The angle measures more than 180 degrees. What value best estimates the angle measure, in degrees?
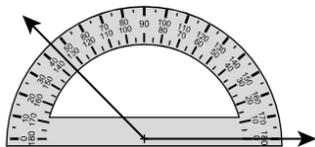
Answer: 225

Explain how you determined your answer.

Answers may vary but should include an explanation of adding to 180.

Measurement & Data

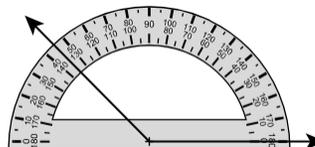| 4.MD.6	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	A protractor is used to measure an angle, as shown. Which value represents the measure, in degrees, of the angle? A. 45 B. 55 C. 135 D. 145	A protractor is used to measure an angle, as shown. What is the measure, in degrees, of the angle? Answer: 135	An angle is shown. Use a protractor to measure the angle, in degrees. What is the measure, in degrees, of the angle? Answer range: 120 - 150	Use a protractor to sketch an angle that measures 135 degrees.
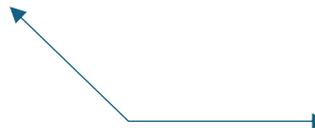
Measurement & Data

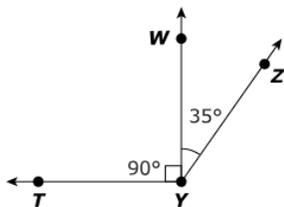| 4.MD.7	Below Proficient	Approaching Proficient	Proficient	Above Proficient

4.MD.7

Expectation at Proficient:

Recognize angle measures as additive.

Solve addition and subtraction problems to find unknown angles on a diagram within mathematical problems as well as problems in real-world contexts.

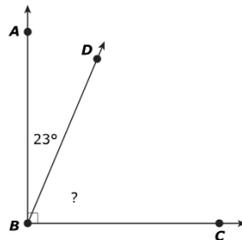### Below Proficient

Some angles are shown.

What is the measure, in degrees, of angle TYZ?

A. 35

B. 55

C. 90

D. 125

Approaching Proficient

Some angles are shown.

Angle ABC measures 90 degrees. What is the measure, in degrees, of angle DBC?

A. 23

B. 73

C. 90

D. 113
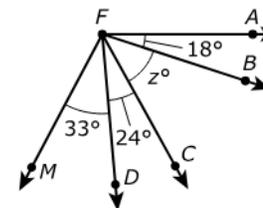
Proficient

Some angles are shown.
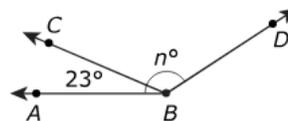
The measure of angle DBA, n, is 147°.

What is the measure, in degrees, of angle DBC?

Answer: 124

Above Proficient

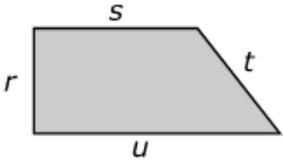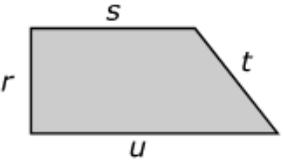Some angles are shown. The measure of angle AFM is 118°.

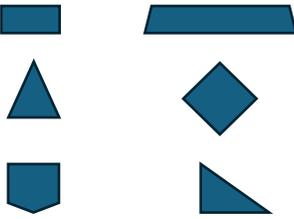Determine the measure, z, in degrees, of angle BFC.

Answer: 43

Write another question that can be determined by using either addition or subtraction of angles in the diagram shown.

Possible question: What is the measure, in degrees, of angle BFD? Answer: 76

Geometry

4.G.1

Expectation at Proficient:

Draw points, line segments, rays, perpendicular, and parallel lines.

Draw angles (right, acute, obtuse).

Identify points, line segments, rays, angles, perpendicular and parallel lines in two-dimensional figures.
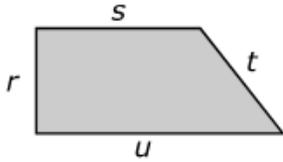
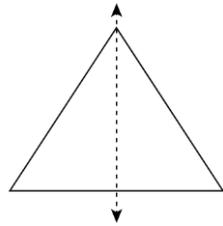| Below Proficient	Approaching Proficient	Proficient	Above Proficient
A trapezoid is shown. Which geometric name best describes each of the sides of the trapezoid? A. ray B. line C. line segment D. angle	A trapezoid is shown. Which statement correctly identifies the relationship between side s and side u? A. Side s is parallel to side u. B. Side s is perpendicular to side u. C. Side s creates a right angle with side u. D. Side s and side u create a line segment.	A trapezoid is shown. Which statement appears to be true? A. Side s is parallel to side r. B. Side u is parallel to side t. C. Side t is perpendicular to side s. D. Side r is perpendicular to side s.	Explain the distinguishing characteristics of parallel and perpendicular lines. The student response could include that parallel lines run in the same direction and never intersect while perpendicular lines always meet at one point, forming a right angle between them. Compare and contrast lines, line segments, and rays. The student response could include that lines are infinite in both directions, while line segments are finite with two endpoints, and rays have one endpoint but extend infinitely in one direction. Line segments and rays have specific starting or ending points. Lines do not.

Geometry

4.G.2

Expectation at Proficient:

Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.

Below Proficient	Approaching Proficient	Proficient	Above Proficient
How many right angles does the figure shown appear to have? A. 2 B. 3 C. 4 D. none	Which shape appears to have exactly 1 right angle? A. B. C. D.	Which shapes appear to have at least two right angles? Select the **three** correct shapes. Answers: rectangle, square, pentagon	How many of each type of geometric element does the figure shown appear to have? Acute angles: 0 Right angles: 0 Obtuse angles: 6 Sets of parallel lines: 3 Sets of perpendicular lines: 0

Geometry

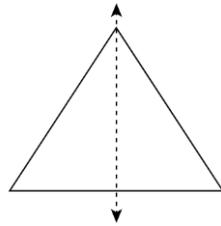| 4.G.3	Below Proficient	Approaching Proficient	Proficient	Above Proficient
Expectation at Proficient: Recognize and draw a line of symmetry for a two-dimension figure as a line across the figure such that the figure can be folded along the line into matching parts.	Does the figure show a line of symmetry? Yes or no. Answer: yes	The figure shows a line of symmetry. Draw another line of symmetry. The student should draw a line that intersect a vertex of the triangle and the midpoint of the opposite side.	Which figure shows a line of symmetry? A. B. C. D.	How many lines of symmetry does the figure shown have? Answer: 6 Draw all the lines of symmetry. The student should draw 3 lines of symmetry that pass through opposite vertices (diagonal symmetry) and 3 lines of symmetry that pass through the midpoints of opposite sides (reflective symmetry).