

Task Model 1a	Prompt Features: The student is prompted to identify the correct sum of fractions in a mathematical context.
Response Type: Equation/Numeric DOK Level 1 5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions	 Stimulus Guidelines: Item difficulty can be adjusted via these example methods: The use of proper fractions, improper fractions, and mixed numbers Fractions with denominators of 10 and 100 Fractions with denominators where one denominator is a factor of the other Fractions with unlike denominators that are not factors of each other Items that require regrouping
in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 =$ 8/12 + 15/12 = 23/12. (In general, $a/b + c/d =$ (ad + bc)/bd.)	TM1aStimulus: The student is presented with an addition problem involving fractions with unlike denominators.Example Stem 1: Enter the sum. $\frac{2}{10} + \frac{30}{100}$ Example Stem 2: Enter the sum. $\frac{8}{6} + \frac{3}{12}$
Evidence Required: 1. The student adds or subtracts fractions with unlike denominators (including mixed numbers) by using visual fraction models or equations to represent the problem. Tools: None	Example Stem 3: Enter the sum. $\frac{3}{4} + 1\frac{3}{5}$ Rubric: (1 point) The student enters the correct sum (e.g., $\frac{50}{100}$ or $\frac{5}{10}$ or $\frac{1}{2}$; $\frac{19}{12}$ or $1\frac{7}{12}$; $\frac{47}{20}$ or $2\frac{7}{20}$). Allow for equivalencies. Response Type: Equation/Numeric



Task Model 1b	Prompt Features: The student is prompted to identify the correct difference of fractions in a mathematical context.
Response Type: Equation/Numeric DOK Level 1 5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions	 Stimulus Guidelines: Item difficulty can be adjusted via these example methods: The use of proper fractions, improper fractions, and mixed numbers Fractions with denominators of 10 and 100 Fractions with denominators where one denominator is a factor of the other Fractions with unlike denominators that are not factors of each other Items that require regrouping
in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 =$ 8/12 + 15/12 = 23/12. (In general, $a/b + c/d =$ (ad + bc)/bd.)	TM1bStimulus: The student is presented with a subtraction problem involving fractions with unlike denominators.Example Stem 1: Enter the difference. $\frac{6}{10} - \frac{20}{100}$ Example Stem 2: Enter the difference. $\frac{15}{12} - \frac{3}{4}$
Evidence Required: 1. The student adds or subtracts fractions with unlike denominators (including mixed numbers) by using visual fraction models or equations to represent the problem.	Example Stem 3: Enter the difference. $2\frac{7}{9} - \frac{3}{8}$ Rubric: (1 point) The student correctly calculates the solution to a subtraction problem involving fractions (e.g., $\frac{40}{100}$ or $\frac{4}{10}$ or $\frac{2}{5}$; $\frac{6}{12}$ or $\frac{1}{2}$; $\frac{173}{72}$ or $2\frac{29}{72}$). Response Type: Equation/Numeric
Tools: None	



Task Model 2a	Prompt Features: The student is prompted to identify the set of steps which correctly find the sum or difference of fractions with
_	unlike denominators.
Response Type:	
Multiple Choice,	Stimulus Guidelines:
single correct	 Item difficulty can be adjusted via these example
response	methods:
	\circ The use of proper fractions, improper fractions,
DOK Level 2	and mixed numbers
	 Fractions with denominators of 10 and 100
	 Fractions with denominators where one
5.NF.A.1	denominator is a factor of the other
Add and subtract	 Fractions with unlike denominators that are not
fractions with unlike	factors of each other
denominators (including	
mixed numbers) by	
replacing given fractions	TM2a
with equivalent fractions	Stimulus: The student is presented with an addition or
in such a way as to	subtraction expression involving fractions with unlike
produce an equivalent	denominators.
sum or difference of	
fractions with like	Example Stem: Which example shows a correct strategy and
denominators. For	solution for subtracting $1\frac{3}{4} - \frac{1}{3}$.
example, 2/3 + 5/4 =	
8/12 + 15/12 = 23/12.	$A = \frac{3}{1} = \frac{1}{1} = \frac{7}{1} = \frac{1}{1} = \frac{7 \times 3}{1} = \frac{1 \times 4}{1} = \frac{7 \times 3}{1} = \frac{1 \times 3}{1}$
(In general, a/b + c/d =	$A. \frac{1}{4\times 3} - \frac{1}{3\times 4} \qquad D. \frac{1}{4\times 3} - \frac{1}{3\times 4} \qquad C. \frac{1}{4\times 3} - \frac{1}{3\times 4} \qquad D. \frac{1}{4\times 3} - \frac{1}{3\times 4}$
(ad + DC)/Dd.)	$=\frac{3}{12}-\frac{1}{12}$ $=\frac{7}{12}-\frac{1}{12}$ $=\frac{21}{12}-\frac{4}{12}$ $=\frac{21}{12}-\frac{3}{12}$
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Evidence Required:	$=\frac{1}{12}=\frac{1}{6}$ $=\frac{1}{12}=\frac{1}{2}$ $=\frac{1}{12}=1\frac{3}{12}$ $=\frac{1}{12}=1\frac{1}{12}=1\frac{1}{12}$
2. The student identifies	
and explains the use of	
equivalent fractions	Rubric: (1 point) The student selects the correct set of steps
when adding or	
subtracting fractions	
with unlike	Response Type: Multiple Choice, single correct response
denominators (including	Response Type: Multiple choice, single correct response
mixed numbers).	
Tools: None	



Response Type:	denominators.
Multiple Choice,	
single correct	Stimulus Guidelines:
response	 Item difficulty can be adjust
DOK Level 1	methods: • The use of proper fra- and mixed numbers • Fractions with depon
5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by	 Fractions with denom denominator is a factors with unlike factors of each other
replacing given fractions with equivalent fractions in such a way as to produce an equivalent	TM2b Stimulus: The student is presented problem involving fractions with un
sum or difference of	Example Stem: David used $2\frac{1}{4}$ fee
fractions with like	also used $3\frac{1}{2}$ feet to make a scarf.
example, $2/3 + 5/4 =$ 8/12 + 15/12 = 23/12.	used to correctly determine the am used altogether?
(In general, a/b + c/d = (ad + ba)/bd)	
(au + bc)/bu.)	A. $5 + \frac{1}{12}$
Evidence Required: 2. The student identifies and explains the use of equivalent fractions when adding or	B. $5 + \frac{1}{7}$ C. $2 + 3 + \frac{1}{12} + \frac{1}{12}$ D. $2 + 3 + \frac{3}{12} + \frac{4}{12}$
subtracting fractions with unlike denominators (including mixed numbers).	TM2c Stimulus: The student is presented problem involving fractions with un
	Example Stem: Sara has $1^{\frac{3}{2}}$ feet
Tools: None	make a bow. Which expression cou determine the amount of cloth, in f
	A. $1 - \frac{3}{2} - \frac{1}{2}$
	12 12
	B. $1 - \frac{1}{12} - \frac{1}{12}$
	C. $1 + \frac{3}{12} - \frac{1}{12}$
	D. $1 + \frac{9}{12} - \frac{4}{12}$
	Rubric: (1 point) The student select expression (e.g., D; D).
	Response Type: Multiple Choice,

Prompt Features: The student is prompted to identify an Task Model 2b-c equivalent expression with like denominators that produced an

ted via these example

equivalent sum or difference of fractions with unlike

- actions, improper fractions,
- ninators of 10 and 100
- ninators where one tor of the other
- denominators that are not

d with a real-world addition like denominators.

et of cloth to make a shirt. He Which expression could be nount of cloth, in feet, David

d with a real-world subtraction like denominators.

of cloth. She used $\frac{1}{3}$ foot to Ild be used to correctly feet, that remains?

cts the correct equivalent

single correct response



Task Model 2d	Prompt Features: The student is prompted to identify an expression that can be used to find the solution to the given expression
Response Type:	
Multiple Choice,	Stimulus Guidelines:
single correct	• Item difficulty can be adjusted via these example
response	methods:
DOK Level 1	 The use of proper fractions, improper fractions, and mixed numbers Fractions with denominators of 10 and 100 Fractions with denominators where one
5.NF.A.1	denominator is a factor of the other
Add and subtract	• Fractions with unlike denominators that are not
fractions with unlike	factors of each other
denominators (including	
mixed numbers) by	TNO
with equivalent fractions	Stimuluce The student is presented with an addition or
in such a way as to	subtraction expression involving fractions with unlike
produce an equivalent	denominators
sum or difference of	
fractions with like	Example Stem 1: Which expression is equivalent to $2 - \frac{1}{3} + \frac{2}{5}$?
denominators. For	. 2 1 2 . 17 7 8
example, 2/3 + 5/4 =	$A_{1} = \frac{1}{4r} + \frac{1}{4r} + \frac{1}{4r} = C_{1} = \frac{1}{4r} + \frac{1}{4r}$
$\frac{3}{12} + \frac{13}{12} = \frac{23}{12}$	15 15 15 15 15 15
(111 general, a/b + c/u =	
(au + bc)/bu.)	2 5 6 30 5 6
Evidence Deguined	B + - D + -
2 The student identifies	
and explains the use of	
equivalent fractions	Pubric: (1 point) The student selects the correct expression
when adding or	(e.g. D)
subtracting fractions	
with unlike	Response Type: Multiple Choice, single correct response
denominators (including	
mixed numbers).	
Tools: None	



Task Model 2e	Prompt Features: The student is prompted to enter the unknown number in an equation used to solve an addition or subtraction problem involving fractions
Response Type:	Subtraction problem involving fractions.
Equation/Numeric	Stimulus Guidelines:Item difficulty can be adjusted via these example
DOK Level 2	 methods: The use of proper fractions, improper fractions, and mixed numbers
5.NF.A.1	 Fractions with denominators of 10 and 100
Add and subtract	 Fractions with denominators where one
fractions with unlike	denominator is a factor of the other
denominators (including mixed numbers) by	 Fractions with unlike denominators that are not factors of each other
replacing given fractions	
with equivalent fractions	
in such a way as to	TM2e
produce an equivalent sum or difference of fractions with like denominators. <i>For</i>	Stimulus: The student is presented with a fraction equation showing equivalent fractions used to add or subtract fractions with unlike denominators.
example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d =	Example Stem 1: Enter the numerator that makes the equation true.
(ad + bc)/bd.)	$1\frac{3}{4} + 1\frac{1}{3} = 1\frac{\Box}{12} + 1\frac{4}{12}$
Evidence Required: 2. The student identifies and explains the use of	Example Stem 2: Enter the numerator that makes the equation true.
equivalent fractions when adding or subtracting fractions	$1\frac{3}{4} + 1\frac{1}{3} = 1 + 1 + \frac{1}{12} + \frac{4}{12}$
with unlike denominators (including mixed numbers).	Rubric: (1 point) The student enters the number that will make the equation true (e.g., 9; 9).
Tools: None	Response Type: Equation/Numeric