

Matthie Recalculation Path

Number Sense: A Complete Course (Book 1) Student Forms

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Built against Master Framework v1.1

NS-PV-01

Form NS-PV-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Which is greater: 0.7 or 0.65?

Tripwire

Which is greater: 0.6 or 0.58?

NS-PV-01 (continued)

Form NS-PV-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Which is greater: 0.35 or 0.350?

Road Test

Two race times are recorded as 12.4 seconds and 12.38 seconds, and a coach asks which runner was faster, with no place-value instructions given.

NS-PV-02

Form NS-PV-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Write 3,406 in word form.

Tripwire

Write 4,208 in word form.

NS-PV-02 (continued)

Form NS-PV-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Write 90,105 in word form.

Road Test

A store's inventory count is written as 'eight thousand, six' and a clerk needs to enter it as a numeral, with no place-value terms used in the request.

NS-PV-03

Form NS-PV-03-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Round 4,832 to the nearest hundred.

Tripwire

Round 26,749 to the nearest thousand.

NS-PV-03 (continued)

Form NS-PV-03-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Round 18,459 to the nearest thousand.

Road Test

A school fundraiser total of \$6,750 needs to be reported to the nearest thousand dollars, with no rounding instructions given.

NS-FM-01

Form NS-FM-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

List the factors of 12.

Tripwire

A student is asked for the factors of 6 and lists 6, 12, 18, 24. What went wrong, and what are the actual factors of 6?

NS-FM-01 (continued)

Form NS-FM-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

List the multiples of 9 up to 45, then list the factors of 9.

Road Test

A teacher wants to arrange 15 desks and asks what numbers of rows would divide the desks evenly, with no factor/multiple language used.

NS-FM-02

Form NS-FM-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Is 51 prime?

Tripwire

Is 87 prime? Show your divisibility tests.

NS-FM-02 (continued)

Form NS-FM-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Is 97 prime? Show your divisibility tests.

Road Test

A locker combination uses a number that a student claims can't be split into any smaller whole-number groups except itself and 1, and asks if 57 qualifies, with no prime-testing instructions given.

NS-FM-03

Form NS-FM-03-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

You need to cut 12 m and 18 m of rope into the longest equal pieces possible, with none left over. How long should each piece be?

Tripwire

Two buses leave a station together, one every 8 minutes and one every 12 minutes. When do they next leave together?

NS-FM-03 (continued)

Form NS-FM-03-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Two lighthouses flash every 15 seconds and every 20 seconds. If they flash together now, when do they next flash together?

Road Test

A baker wants to divide 24 cupcakes and 36 cookies into identical gift boxes with the most items per box and nothing left over, with no GCF/LCM language used.

NS-FR-01

Form NS-FR-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Which is greater: $\frac{2}{3}$ or $\frac{3}{5}$?

Tripwire

Which is greater: $\frac{3}{5}$ or $\frac{4}{7}$?

NS-FR-01 (continued)

Form NS-FR-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Which is greater: $\frac{4}{9}$ or $\frac{5}{11}$?

Road Test

Two recipes use $\frac{3}{8}$ cup and $\frac{2}{5}$ cup of sugar, and a baker wants to know which uses more, with no fraction-comparison method suggested.

NS-FR-02

Form NS-FR-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Write a fraction equivalent to $\frac{2}{5}$ with a denominator of 20.

Tripwire

Rewrite $\frac{3}{4}$ with a denominator of 12.

NS-FR-02 (continued)

Form NS-FR-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Write a fraction equivalent to $\frac{5}{6}$ with a denominator of 24.

Road Test

A recipe needs to be scaled so that a $\frac{3}{8}$ -cup measurement becomes an equivalent amount out of 32 total parts, with no equivalent-fraction language used.

NS-FR-03

Form NS-FR-03-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Simplify $\frac{18}{24}$ completely.

Tripwire

Simplify $\frac{12}{18}$ completely.

NS-FR-03 (continued)

Form NS-FR-03-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Simplify $\frac{20}{30}$ completely, and state whether $\frac{9}{4}$ is a valid final answer as written.

Road Test

A survey shows $\frac{14}{21}$ of respondents prefer one option, and a report needs this in simplest form, with no simplification instructions given.

NS-DC-01

Form NS-DC-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Multiply: 2.4×1.3

Tripwire

Multiply: 3.5×1.6

NS-DC-01 (continued)

Form NS-DC-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Multiply: 0.6×0.5

Road Test

A recipe calls for 2.5 servings of a dish that uses 1.4 cups of rice per serving, and a cook needs the total rice, with no decimal-multiplication instructions given.

NS-DC-02

Form NS-DC-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Subtract: $8 - 3.25$

Tripwire

Subtract: $5 - 0.46$

NS-DC-02 (continued)

Form NS-DC-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Subtract: $15 - 6.75$

Road Test

A gift card starts with \$20 and a purchase of \$13.40 is made, and a shopper wants to know what's left, with no decimal-subtraction instructions given.

NS-DC-03

Form NS-DC-03-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Divide: $8.4 \div 0.7$, and estimate first.

Tripwire

Divide: $6.3 \div 0.9$

NS-DC-03 (continued)

Form NS-DC-03-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Divide: $5.4 \div 0.6$, and predict bigger or smaller than 5.4 first.

Road Test

A board 7.2 meters long needs to be cut into pieces that are each 0.9 meters, and a carpenter wants to know how many pieces result, with no decimal-division instructions given.

NS-IN-01

Form NS-IN-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Which is greater: -8 or -3?

Tripwire

Which is greater: -13 or -6?

NS-IN-01 (continued)

Form NS-IN-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Order from least to greatest: -4, -11, -1

Road Test

Two cities report temperatures of -15 degrees and -8 degrees, and a forecaster asks which is colder, with no integer-comparison language used.

NS-IN-02

Form NS-IN-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Find the absolute value of -9, and the opposite of -9.

Tripwire

Find the absolute value of -7. Is the answer ever negative?

NS-IN-02 (continued)

Form NS-IN-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Find the opposite of 12 and the absolute value of -12.

Road Test

A submarine is at a depth described as -85 meters, and a report asks how far below the surface it is, with no absolute-value language used.

NS-IN-03

Form NS-IN-03-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Calculate: $-5 + (-3)$

Tripwire

Calculate: $9 - (-6)$

NS-IN-03 (continued)

Form NS-IN-03-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Calculate: $-7 + (-4)$, and $10 - (-3)$

Road Test

A hiker starts at an elevation of -20 m relative to a trailhead and descends another 15 m, and a report asks the new elevation, with no addition-of-integers language used.

NS-IN-04

Form NS-IN-04-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Calculate: $-4 \times (-6)$

Tripwire

Calculate: $-8 + (-3)$. Does “two negatives make a positive” apply here?

NS-IN-04 (continued)

Form NS-IN-04-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Calculate: $-6 \times (-3)$, and $-9 + (-9)$

Road Test

A scoring system subtracts points for wrong answers, and a student with -4 points per question over 5 questions asks for the total, with no multiplication-of-integers language used.

NS-RN-01

Form NS-RN-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Is -4 a rational number? Is $0.121212\ldots$ (repeating) rational?

Tripwire

Is 7 a rational number? Explain using the definition, not a guess.

NS-RN-01 (continued)

Form NS-RN-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Is -6 rational? Is 3.14159265358979... (non-repeating) rational?

Road Test

A measurement is recorded as exactly 5 (a whole number of units), and someone asks whether it counts as one of the numbers that can be written as a fraction, with no rational-number vocabulary used.

NS-RN-02

Form NS-RN-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Compare: $\frac{3}{4}$ and 0.7

Tripwire

Compare: $-\frac{2}{5}$ and -0.35

NS-RN-02 (continued)

Form NS-RN-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Compare: $\frac{5}{6}$ and 0.8

Road Test

Two discounts are advertised as $\frac{3}{8}$ off and 0.4 off, and a shopper wants to know which is the bigger discount, with no conversion method suggested.

NS-OP-01

Form NS-OP-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Evaluate: $24 \div 4 \times 2$

Tripwire

Evaluate: $42 \div 7 \times 3$. Explain why multiplication does not automatically come first.

NS-OP-01 (continued)

Form NS-OP-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Evaluate: $16 - 5 + 3$

Road Test

A recipe scaling calculation is written as 40 divided by 8 times 3, and a cook needs the result, with no order-of-operations language used.

NS-OP-02

Form NS-OP-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Evaluate: $(9 - 4) \times 3$

Tripwire

A student says $8 + 5 - 6 = -3$ because subtraction comes before addition. Explain the error and calculate correctly.

NS-OP-02 (continued)

Form NS-OP-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Evaluate: $6^2 \div (2 + 1)$

Road Test

A garden area calculation is written as a squared side length of 4, minus a walkway of 3 square meters, and someone needs the remaining area, with no order-of-operations language used.

NS-PW-01

Form NS-PW-01-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Evaluate: 4^3

Tripwire

Evaluate: 5^3 . Is this the same as 5×3 ?

NS-PW-01 (continued)

Form NS-PW-01-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Evaluate: 3^4

Road Test

A cell culture doubles in a pattern described as 2 multiplied by itself 6 times, and a researcher wants the total, with no exponent language used.

NS-PW-02

Form NS-PW-02-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Evaluate: 7^0 , and evaluate -3^2 and $(-3)^2$

Tripwire

Evaluate both -4^2 and $(-4)^2$. Explain why the answers are different.

NS-PW-02 (continued)

Form NS-PW-02-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Evaluate: 5^0 , and -2^4 vs $(-2)^4$

Road Test

A student writes $3^2 \times 3^4 = 9^6$, and a peer asks if this is right, with no exponent-rule language used.

NS-PW-03

Form NS-PW-03-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Evaluate: $\sqrt{49}$

Tripwire

A student says $\sqrt{98} = 49$ because $98 \div 2 = 49$. Explain the error, then estimate $\sqrt{98}$.

NS-PW-03 (continued)

Form NS-PW-03-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Evaluate $\sqrt{121}$, and explain why $\sqrt{40}$ is not 20.

Road Test

A square tile has an area of 36 square inches, and someone asks for the side length, with no square-root language used.

NS-PW-04

Form NS-PW-04-RF1

Name: _____ Grade: _____ Date: _____

Route Finder

Estimate $\sqrt{70}$ between two consecutive whole numbers.

Tripwire

Estimate $\sqrt{155}$ between two consecutive whole numbers, showing the benchmarks you used.

NS-PW-04 (continued)

Form NS-PW-04-CF1

Name: _____ Grade: _____ Date: _____

Confirmation

Estimate $\sqrt{200}$ between two consecutive whole numbers, and state whether $\sqrt{49} = \pm 7$.

Road Test

A square garden plot has an area of 130 square meters, and a landscaper wants a whole-number estimate for the side length, with no square-root or benchmark language used.
