

7 Grade 7 Math for STAAR™

DynaNotes™ Review Guide



DYNA NOTES™
 TOOLS FOR EXPLOSIVE LEARNING

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Symbol indicates section aligns to Texas College and Career Readiness Standards.

Category 1 – Numbers, Operations, and Reasoning

COMPARING AND ORDERING RATIONAL NUMBERS

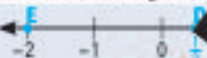
rational number: number that can be expressed as a fraction

Type of Rational Number	Examples
integer: whole number, its opposite, or zero	$-7, -1, 0, 13$
fraction: part of a whole; numerator ÷ denominator	$\frac{1}{2}, \frac{3}{4}, \frac{2}{5}, \frac{1}{10}$
improper fraction: fraction's numerator > denominator	$\frac{5}{4}, \frac{7}{3}, \frac{11}{2}$
mixed number: whole number and a fraction	$1\frac{1}{2}, 4\frac{3}{4}, 15\frac{1}{5}$
decimal: fraction with denominator of either 10, 100, 1,000, ...	$0.75, 0.2, 3.5$
repeating decimal: decimal's digits repeat; use bar	$0.333... = 0.\overline{3}$
terminating decimal: decimal's digits end	$0.125, 5.1$
percent: ratio that relates a number to 100; use % sign	$50\%, 2.75\%$

Symbol	Meaning	Example
=	is equal to	$56,752 = 56,752$
>	is greater than	$56,752 > 56,572$
<	is less than	$56,572 < 56,752$
≥	is greater than or equal to	2.1 and 2.0 are both ≥ 2.0
≤	is less than or equal to	$\frac{1}{2}$ and $\frac{3}{4}$ are both ≤ 1

number line: used to locate, order, add, and subtract numbers; numbers increase from left to right; numbers to the right of zero are positive (use + sign or no sign); numbers to the left of zero are negative (use - sign)

Example 1: Compare points A, D, and E. $-2 < \frac{1}{2} < 1\frac{1}{2}$, so $E < D < A$



Example 2: $1\frac{1}{2} + \frac{1}{4} = 1\frac{3}{4}$

To order and compare numbers, they all must be in the same format.

Format	Comparison Method
integers	starting from left, compare the numbers
decimals	starting from left, compare the numbers
fractions	compare numerators of fractions with the same denominator
mixed numbers	compare whole numbers first; if the whole numbers are equal, then compare the fractions

Example: To compare $3\frac{1}{2}$, 3.2 , and $3\frac{2}{5}$, first convert all numbers to the same format. $3\frac{1}{2} = 3.5$, 3.2 , and $3\frac{2}{5} = 3.4$. The greatest value is in tenths place.

Numbers can be ordered from least to greatest (19, 0.5, 1.2, 9.0) or greatest to least (11, 10, 9.3). To check the reasonableness of an answer, you can estimate numbers by rounding to the nearest whole number (like hundreds).

Example: Is 591 a reasonable solution to $885 - 294$? $885 - 294 = 591$. The numbers so close to 600 – 300 = 300. An answer of 591 is reasonable (close to 300).

CONVERSION

Convert (change) units of measurement, fractions, and percents.

From	To	Conversion Method
decimal	percent	multiply the number by 100; move decimal point to the right one place; add % sign
percent	decimal	divide the number by 100; move decimal point to the left two places; remove % sign
fraction	decimal	divide the numerator by the denominator; add % sign
percent	fraction	divide the percent by 100; add % sign
mixed number	fraction	multiply the denominator by the whole number and add the product to the numerator; sum (the new numerator) over the denominator

Example 1: 89% of Ed's work is done. Show as a fraction and as a decimal. $89\% = \frac{89}{100} = 0.89$

Example 2: Show a decimal (fraction) where the numerator goes in long division sign.

Fraction	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{4}{5}$	$\frac{1}{10}$
Equivalent Decimal	0.5	0.3	0.6	0.25	0.75	0.2	0.4	0.6	0.8	0.1
Equivalent Percent	50%	33 $\frac{1}{3}$ %	66 $\frac{2}{3}$ %	25%	75%	20%	40%	60%	80%	12.5%

OPERATIONS AND PROBLEM SOLVING

sum: result of adding numbers (the total)
difference: result of subtracting numbers (the total)

To add or subtract numbers, write the numbers by their place value. Subtract each column starting from the right, regroup (carry over) and then do the next column. Place a decimal point in the answer if there is a decimal point in the original numbers.

fraction addition and subtraction: requires a common (same) denominator.

multiplication: method to combine numbers (the product).

reciprocals: numbers whose product equals 1 (the reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$).

division: divide a number into equal parts; result is called a quotient.

decimal: number of digits to the right of the decimal point.

Example: 6.548 has 3 decimal places. $6.548 \div 10 = 0.6548$.

Example: $6 \div 4 = 1\frac{3}{4}$ because 4 goes into 6 one time with a remainder of 2. He uses the remainder to split the muffins. $6 \div 4 = 1\frac{3}{4}$.

Example: How much tea does she have? Fraction multiplication of $1\frac{1}{2} \times \frac{1}{2} = 1\frac{1}{2}$ gal.

Example: $1\frac{1}{2} \times \frac{1}{2} = 1\frac{1}{2}$ gal. $1\frac{1}{2} \times \frac{1}{2} = 1\frac{1}{2}$ gal.

Example: fraction division of $4\frac{1}{2} \div \frac{1}{2} = 9$.

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Example: decimal multiplication of $1.32 \times 2.1 = 2.772$.

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Example: decimal division of $4.2 \div 1.2 = 3.5$.

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Example: $1.24 \div 0.36 = 3.44$. $1.24 \div 0.36 = 3.44$.

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