Decimals

Interesting Items

Which subclusters will we choose for review?	What are common errors and misconceptions we can help students avoid?	Which items will we use?
Representation of Decimals Supporting: 5.2(A)	• misidentifying the thousandths place value with thousands or with hundredths • misidentifying the language of place value and/or fractional values with symbolic representations • misrepresenting the value of a number when a zero value is not represented in expanded notation [e.g. (4 x 10) + (6 x 0.1) = 4.6 instead of 40.6]	5.2(A) 2016 item 5
Comparison of Decimals Readiness: 5.2(B)	• relying on a trick to determine directionality (e.g., the alligator's mouth eats the bigger number) and may not be able to read comparison symbols correctly • comparing the number of digits instead of applying their understanding of place value to determine the value of decimals (e.g., 0.451 is greater than 0.98 because it has more digits)* • not understanding that 0.7 is equivalent to 0.70* • not viewing that the comparison statement 5.246 < 5.43 is the same as 5.43 > 5.246 • not understanding the context of problems to order decimals correctly (e.g., when ordering time from fastest to slowest, ordering from greatest to least) • being unable to apply comparison symbols when ordering multiple values (e.g., 3,342 < 3,349 < 3,358 < 3,409)*	5.2(B) 2023 item 24 5.2(B) 2021 item 17 5.2(B) 2017 item 25 5.2(B) 2016 item 34
Estimation of Decimals Supporting: 5.2(C), 5.3(A)	• solving a problem first and then estimating the results • always rounding to the nearest whole number instead of the respective place value • rounding to the incorrect place value*	5.2(C) 2023 item 19 5.2(C) 2016 item 1 5.3(A) 2017 item 31
Addition/Subtraction of Decimals Readiness: 5.3(K)	• having difficulty applying fraction/decimal equivalencies when asked to add a fraction and a decimal* • applying the use of "key words" to select addition or subtraction instead of understanding the context of the problem* • lining up the decimal point incorrectly (or not at all) when adding or subtracting decimal numbers • representing values of money incorrectly (e.g., 5 cents = 0.50)	5.3(K) 2022 item 27 5.3(K) 2019 item 19 5.3(K) 2019 item 28 5.3(K) 2018 item 14 5.3(K) 2017 item 10
Multiplication of Decimals Readiness: 5.3(E) Supporting: 5.3(D)	• misunderstanding the value of the whole when using an area model to represent the multiplication of decimals* • applying the use of "key words" to select addition or subtraction instead of understanding the context of the problem • thinking that multiplying two numbers always yields a larger product • when applying the standard algorithm, aligning place values in the same way as when adding/subtracting decimals*	5.3(E) 2018 item 7 5.3(E) 2017 item 17 5.3(E) 2016 item 9 5.3(E) 2016 item 39 5.3(D) 2021 item 14 5.3(D) 2016 item 42
Division of Decimals Readiness: 5.3(G) Supporting: 5.3(F)	• applying the use of "key words" to select addition or subtraction instead of understanding the context of the problem* • when applying the standard algorithm, not articulating the correct place value understanding (e.g., 384 ÷ 3 = x; "three goes into three one time" instead of "there are 100 groups of three in 300") • reverting to past experience when using base ten blocks to represent whole numbers and becoming confused when using the manipulatives to represent decimal values* • confusing whole number division models with decimal division models	5.3(G) 2023 item 14 5.3(G) 2018 item 35 5.3(G) 2017 item 33 5.3(F) 2023 item 31 5.3(F) 2022 item 11 5.3(F) 2016 item 10 5.3(F) 2015 item 6
Numerical Expressions Readiness: 5.4(F) Supporting: 5.4(E)	• just working problems from left to right (e.g., 5 + 10 x 4 ≠ 15 x 4 = 60) instead of applying order of operations (e.g., 5 + 10 x 4 = 5 + 40 = 45)* • working addition problems first then subtraction (e.g., 15 – 6 + 3 ≠ 15 – 9 = 6) instead of which operation comes first in reading from left to right (e.g., 15 – 6 + 3 = 9 + 3 = 12) • working multiplication problems first then division (e.g., 24 ÷ 3 x 2 ≠ 24 ÷ 6 = 4) instead of which operation comes first when reading from left to right (e.g., 24 ÷ 3 x 2 = 8 x 2 = 16) • misunderstanding that the grouping symbols (e.g., parentheses and brackets) communicate the order of the operations performed* • misidentifying parentheses and brackets as additive [e.g., 8(9-2) = 8(7) = 15] instead of multiplicative [e.g., 8(9-2) = 8(7) = 56]* • not appropriately translating numerical expressions from word problems*	5.4(F) 2019 item 29 5.4(F) 2018 item 27

Which stimuli will we emphasize?

Word Problem*	Verbal Description*	Chart/ Table*	Graph	Equation/ Expression*	Manipulatives	Diagram/ Image*	Number Line	Base Ten Blocks*	Measurement Tool	Formula	Geometric Figures

Which words will we prioritize?

< (less than)*	dividend*	greatest to least	product
= (equal to)*	divisor	hundreds, hundredths	quotient*
> (greater than)*	equivalent expression*	inequality*	round*
(area) model*	estimate*	least to greatest*	simplify
billion	estimation language (about, a little more/ less than, close to, approximately)	million	sum
bracket		order of operations	tens/tenths
compatible number	expanded notation*	parentheses*	thousands/thousandths
difference	factor	place value	thousandths

Have we prepared students to respond to different item types?

Multiselect (2 pts)	Equation Editor (1-2 pts)	Text Entry (1-2 pts)	Graphing (1-2 pts)	Inline Choice (1-2 pts)	Hot Spot (1-2 pts)	Fraction Model (1-2 pts)	Drag and Drop (1-2 pts)	Multiple Choice (1 pt)

*used on STAAR