

Review Practice Problems

Fractions and integers:

Perform the operations with the fractions.

Explain the steps you will take to add or subtract fractions with unlike denominators.

- Determine the LCD of the denominators. Rewrite each fraction over the LCD
- Add or subtract the numerators. Simplify

Explain the steps you will take to divide fractions.

multiply the first fraction by the reciprocal of the second fraction.

<p>1) $\frac{1}{3} + (-\frac{9}{20})$ LCD: 60</p> $\frac{1}{3} \cdot \frac{20}{20} + \frac{-9}{20} \cdot \frac{3}{3}$ $\frac{20}{60} + \frac{-27}{60}$ <p style="text-align: center;">$\frac{-7}{60}$</p>	<p>2) $-\frac{2}{3} + (-\frac{1}{8})$ LCD: 24</p> $-\frac{2}{3} \cdot \frac{8}{8} + \frac{-1}{8} \cdot \frac{3}{3}$ $\frac{-16}{24} + \frac{-3}{24}$ <p style="text-align: center;">$\frac{-19}{24}$</p>	<p>3) $-3 - 4$</p> $-3 + -4$ <p style="text-align: center;">-7</p>
<p>4) $-\frac{21}{5} \cdot (-\frac{1}{3})$</p> $\frac{-21}{5} \cdot \frac{-1}{3} \Rightarrow \frac{7}{5}$	<p>5) $\frac{2}{3} \cdot \frac{9}{14}$</p> $\frac{2}{3} \cdot \frac{9}{14} = \frac{3}{7}$	<p>6) $-2 \cdot -4$</p> <p style="text-align: center;">8</p> <p>Two negatives multiplied equal a positive</p>
<p>7) $-\frac{8}{3} \div (-\frac{1}{3})$</p> $\frac{-8}{3} \cdot \frac{-3}{1}$ <p style="text-align: center;">8</p>	<p>8) $\frac{5}{9} \div (-\frac{2}{3})$</p> $\frac{5}{9} \cdot \frac{-3}{2}$ <p style="text-align: center;">$\frac{-5}{6}$</p>	<p>9) $-10 \div 2$</p> $\frac{-10}{1} \cdot \frac{1}{2}$ <p style="text-align: center;">-5</p>

Order of Operations: I can evaluate expressions and use the order of operations with integers.

10) What is the agreed upon order for operations?

- Grouping symbols
- Powers
- multiplication or division (left to right)
- Addition or subtraction (left to right)

OR $\frac{-21}{5} \cdot \frac{-1}{3} = \frac{21}{15} = \frac{7}{5}$

Simplify these expressions.

<p>11) $\frac{-4+6 \cdot (8-3)}{2 \cdot 3 - 6 \cdot 8}$</p> <p>$\frac{-4+6(5)}{6-48}$</p> <p>$\frac{-4+30}{6-48}$</p> <p style="text-align: right;">$\frac{-26}{42}$</p> <p style="text-align: right;">$\frac{-13}{21}$</p>	<p>12) $9 - 5 \div (8 - 3) \cdot 2 + 6$</p> <p>$9 - 5 \div 5 \cdot 2 + 6$</p> <p>$9 - 1 \cdot 2 + 6$</p> <p>$9 - 2 + 6$</p> <p>$7 + 6$</p> <p style="text-align: center;">13</p>
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Simplify these expressions when $x = 12$, $y = -2$, and $z = 0$

<p>13) $\frac{z}{xy}$</p> <p>$\frac{0}{12(-2)}$</p> <p>$\frac{0}{-24}$</p> <p style="text-align: center;">0</p>	<p>14) $3y^2 + 2x - 3z$</p> <p>$3(-2)^2 + 2(12) - 3(0)$</p> <p>$3(4) + 2(12) - 3(0)$</p> <p>$12 + 24 + 0$</p> <p style="text-align: center;">36</p>
<p>15) $x - y + z(x + y)$</p> <p>$12 - (-2) + 0(12 + (-2))$</p> <p>$12 + 2 + 0(10)$</p> <p>$12 + 2 + 0$</p> <p style="text-align: center;">14</p>	<p>16) $x + y + \sqrt{z} + xyz$</p> <p>$12 + (-2) + \sqrt{0} + 12(-2)(0)$</p> <p>$10 + 0 + 12(-2)(0)$</p> <p>$10 + 0 + 0$</p> <p style="text-align: center;">10</p>

Symbols: I understand and can use basic algebraic symbols with operations.

Fill in the table. Use academic vocabulary!

Symbol	Name	Problem - simplify
a^b	power	3^3 $3 \cdot 3 \cdot 3$ 27
		-2^2 $-1 \cdot 2 \cdot 2$ -4
		$(-4)^2$ $(-4)(-4)$ 16
\sqrt{x}	square root	$\sqrt{81}$ 9
		$\sqrt{-9}$ no real number
$ z $	absolute value	$ -12 $ 12 $- -3 $ -3 $(-1) \cdot$

$\sqrt[3]{y}$	cube root	$\sqrt[3]{-8}$	-2
		$\sqrt[3]{64}$	4

Simplify the square roots.

Writing Expressions: I can create algebraic expressions from words

Words	Algebraic Expression
3 <u>less than</u> product of 3 and x subtract	$3x - 3$
The sum of x and 5 add	$x + 5$
The difference of x and 6 subtract	$x - 6$
The quotient of n and 5 divide	$\frac{n}{5}$ or $n \div 5$
Four <u>less than</u> the quotient of z and 7 subtract	$\frac{z}{7} - 4$