1-99 Mixed Review p101: 56-61

2.6 Divide Numbers

If you multiply $\frac{2}{3} \cdot \frac{3}{2} = ?$ 1

$\frac{1}{5} \cdot \frac{5}{1} = ?$ 1

They are called Multiplicative Inverses because their product is 1

$\frac{8}{19}$ & $\frac{19}{8}$

$\frac{2}{3}$ & $\frac{3}{2}$ } are reciprocals ... a & $\frac{1}{a}$ $a \neq 0$

$\frac{1}{5}$ & $\frac{5}{1}$

ex #	reciprocal
$\frac{1}{3}$	3 or $\frac{3}{1}$
$-\frac{5}{8}$	$-\frac{8}{5}$
$\frac{7}{1}$	$\frac{1}{7}$

So Divide

$3x = 12$

$\div 3 \quad \div 3$

$x = 4$

or

Mult Inverse

$\frac{1}{3} \cdot 3x = \frac{12}{1} \cdot \frac{1}{3}$

$x = 4$

SAME!

Division Rule

$a \div b = a \cdot \frac{1}{b}$ $b \neq 0$

$7 \div 3 = 7 \cdot \frac{1}{3} = \frac{7}{3}$

$19 \div 19 = 19 \cdot \frac{1}{19} = \frac{19}{19} = 1$

$\frac{2}{5} \div \frac{3}{8} = \frac{2}{5} \cdot \frac{8}{3} = \frac{16}{15}$

Signs

$\frac{+}{+} = +$ $\frac{+}{-} = -$

$\frac{-}{-} = +$ $\frac{-}{+} = -$

Same sign Diff signs

Solve w/ Mult Inv

1) $-16 \div 4$

$= \frac{-16}{1} \cdot \frac{1}{4}$ ← cross-cancel, ÷ by 4

$= \frac{-4 \cdot 1}{1 \cdot 1} = \frac{-4}{1}$ or -4

2) $18 \div \left(-\frac{2}{9}\right)$

$= \frac{18}{1} \cdot \frac{-9}{2}$ ÷ by 2

$= \frac{9 \cdot -9}{1 \cdot 1} = \frac{-81}{1} = -81$

Simplify with Division

$\frac{36x-24}{6}$ → write as $\frac{36x}{6} - \frac{24}{6} \rightarrow 6x - 4$

or $\frac{1}{6}(36x-24) = \frac{1}{6}(36x) + \frac{1}{6}(-24)$

$= 6x + (-4)$

$\frac{2x-8}{4} \rightarrow \frac{2x}{4} - \frac{8}{4} \rightarrow \frac{1}{2}x - 2$ or $\frac{x}{2} - 2$

or $\frac{1}{4}(2x-8) = \frac{1}{4}(2x) + \frac{1}{4}(-8)$

$= \frac{x}{2} + -2$ or $\frac{x}{2} - 2$

plos:
11-13, 19, 20, 22
25, 28, 33, 35
36, 37