Simplify.

$4\frac{3}{5}$

$= \frac{20}{5} - \frac{3}{5} = \frac{17}{5} = 3\frac{2}{5}$

Find this product.

$\frac{6}{5} \cdot 2\frac{7}{9}$

$\frac{6^{\div 3}}{5_{\div 5}} \cdot \frac{25^{\div 5}}{9_{\div 3}} = \frac{2}{1} \cdot \frac{5}{3} = \frac{10}{3} = 3\frac{1}{3}$

The quotient of two fractions:

Simplify:

$\frac{12}{7} \div \frac{16}{35}$

Instead of dividing by a fraction you can MULTIPLY by the RECIPROCAL.

$= \frac{12^{\div 4}}{7_{\div 7}} \cdot \frac{35^{\div 7}}{16_{\div 4}} = \frac{3}{1} \cdot \frac{5}{4} = \frac{15}{4}$

Find this quotient.

$\frac{\frac{18}{15}}{\frac{16}{27}} \rightarrow \frac{18}{15} \div \frac{16}{27}$

$= \frac{18^{\div 2}}{15_{\div 3}} \cdot \frac{27^{\div 3}}{16_{\div 2}}$

$= \frac{9}{5} \cdot \frac{9}{8} = \frac{81}{40}$

11. $\dfrac{4}{\frac{10}{3}} = 4 \div \frac{10}{3} = \dfrac{4}{1} \cdot \dfrac{3}{10} \overset{\div 2}{\overset{\div 2}{}}$

$= \dfrac{2}{1} \cdot \dfrac{3}{5} = \dfrac{6}{5}$

Section 1-2: Exponents and Order of Operations

7 → Base 4 → Exponent

How can you say each?

1. 5^2
   - Five to the second power.
   - The second power of five.
   - Five squared.
2. 4^3
   - Four to the third power.
   - The third power of four.
   - Four cubed.
3. 6^5
   - Six to the fifth power.
   - The fifth power of six.

What does each equal? x = 3

1. $2x^2$

$2(3)^2$

$2 \cdot 9 = 18$

2. $(2x)^2$ = $(2 \cdot 3)^2 = 6^2 = 36$

3. $-x^2$

$= -(3)^2$

$= -(9) = -9$

4. $(-x)^2$ = $(-(3))^2 = (-3)^2$

$= (-3)(-3)$

$= +9$

Simplify each without a calculator.

1. $8 - 4 + 3$

$= 4 + 3$

$= 7$

2. $12 \div 4 \cdot 3$

$= 3 \cdot 3$

$= 9$

Order of Operations:
PEMDAS

Summary **Order of Operations**

1. Perform any operation(s) inside grouping symbols.
2. Simplify powers.
3. Multiply and divide in order from left to right.
4. Add and subtract in order from left to right.

Parentheses ( )
are just one example of grouping symbols. Can you name two others?

Parentheses: ( )

Brackets: [ ]

Braces: { }

Simplify using order of operations

WITHOUT A CALCULATOR

Could be written as

$4 - 2(13 - (7 + 3))^2$

$4 - 2[13 - (7 + 3)]^2$

$4 - 2(13 - 10)^2$

$4 - 2(3)^2$

$4 - 2(9)$

$4 - 18 =$

-14

Simplify. $\frac{8 - 3}{4} = \frac{5}{4}$

Why can't you divide just the 8 by 4?

because this fraction really means: $(8 - 3) \div 4$

And by Order of Operations you must subtract before you divide.

If you wanted to divide first you would have to divide both the 8 and the 3 by 4, then you could subract.

Simplify each

$2 - (5 + 1) \div (9 - 2)$

$= 2 - 6 \div 7$

$= 2 - \frac{6}{7}$ $= 1\frac{1}{7}$ or $\frac{8}{7}$