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.

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. $\frac{8 - 3}{4}$

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.

$(8-3) \div 4 = 5 \div 4 = \frac{5}{4}$

Simplify each

$12 \div (10 - 2^3) \cdot 10$

$12 \div (10 - 8) \cdot 10$

$12 \div 2 \cdot 10$

$6 \cdot 10 = 60$

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

$= 2 - 6 \div 7$

$= 2 - \frac{6}{7}$

$= 1\frac{1}{7}$ or $\frac{8}{7}$

Simplify.

$9-4^2\left(\frac{24}{6}\div 2\cdot 5\right)\div 8$

$(4 \div 2 \cdot 5)$

$(2 \cdot 5)$

$9-4^2(10)\div 8$

$9-16(10)\div 8$

$9-160\div 8$

$9-20$

$= -11$

$6-10+27\div(8-5)^2\cdot 2$

$(3)^2$

$27\div 9\cdot 2$

$3\cdot 2$

$6-10+6$

$= -4+6 = 2$