

PROBLEM-OF-THE-DAY: ALGEBRA 1**WEEK:** September 4 to September 7**DAY:** Thursday

RISD Objective: Provided an algebraic expression with multiple operations (including absolute value operations), students will be able to evaluate that expression when given numerical values for the variables.

PROBLEM #13

While most of the world measures temperature using the Centigrade (or Celsius) scale, the United States uses the Fahrenheit scale. Suppose you have a friend, Froda, who lives in Oslo, Norway. Froda sends an email to you telling you the low temperature last night in Oslo was -10°C but his apartment was 24°C . You use the Internet to find the following temperature

conversion formulas: $F = \frac{9}{5}(C) + 32$ and $C = \frac{5}{9}(F - 32)$

where C = degrees Celsius and F = degrees Fahrenheit. Use one of these formulas to convert the Celsius temperatures Froda sent you to Fahrenheit (round to nearest degree).

Low Temperature in Oslo _____

Temperature Inside Froda's Apartment _____

MODEL SOLUTION #13

Since we want to find F, we will use the formula where C is the independent variable and F is the dependent variable:

$$F = \frac{9}{5}C + 32.$$

For the low temperature, C = -10:

$$F = \frac{9}{5}(-10) + 32$$

$$(9)(-2) + 32$$

$$-18 + 32$$

$$14$$

For the apartment temperature, C = 24:

$$F = \frac{9}{5}(24) + 32$$

$$\frac{216}{5} + 32$$

$$43\frac{1}{5} + 32$$

$$75\frac{1}{5}$$

Therefore, the low temperature in Olso was $14^{\circ}F$ and Froda's apartment temperature was $75^{\circ}F$.