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Temperature Conversion

$$Celsius = \frac{5}{9}(Fahrenheit - 32)$$

$$C = \frac{5}{9}(98.6 - 32)$$

(1) **Given the value of one variable, solve the equation.**

(2) Rewrite the Fahrenheit equation and set it equal to Celsius.

(3) Determine the corresponding unit conversions.

(4) Estimate the conversion between Fahrenheit and Celsius.

(5) Rewrite the equation.

(6) Match the equivalent two-variable equations.

(+) with many hints, answer keys, and solution approaches for all tasks

⚠ The complete package, **including all tasks, hints, solutions, and solution approaches**, is available to all subscribers of sofatutor.com

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Worksheet: Temperature Conversion
Math / Middle School / Linear Equations / Systems of Linear Equations and Their Solutions/ Temperature Conversion
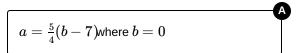
1
from 6

Given the value of one variable, solve the equation.

Sort the equations from lowest to highest values of a.

A

$a = \frac{5}{4}(b - 7)$ where $b = 0$

B

$a = 12b + 40$ where $b = 6$

C

$a + 7b = 18$ where $b = -9$

D

$2a = 6(b - 19)$ where $b = 5$

E

$\frac{3}{8}b - 23 = a$ where $b = 11$

CORRECT ORDER $\quad$ ☐ ☐ ☐ ☐ ☐

Our hints for the tasks

1
from 6

Given the value of one variable, solve the equation.

1. Hint

Plug in the given value for b, then follow order of operations to simplify that side.

2. Hint

Then use the inverse operations to isolate a variable. For example, the inverse of addition is subtraction, and the inverse of multiplication is division.

3. Hint

To solve for a, the variable has to be completely isolated with a coefficient of positive 1.

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Solutions and solution approaches for the tasks

1
from 6

Given the value of one variable, solve the equation.

Answer key: D, E, A, C, B

- First, plug in the given value for b into the given equation.
- Next, follow order of operations: parentheses, multiplication/division, and addition/subtraction. Keep in mind that when you are multiplying/dividing or adding/subtracting, you should work from left to right.
- Simplify until the equation is solved for a.

In order from lowest value to greatest value:

Problem 1
- $2a = 6(b - 19)$ where $b = 5$
- $2a = 6(5 - 19)$
- $2a = 6(-14)$
- $2a = -84$
- Since the coefficient of a is not yet one, we need to divide both sides by 2, leaving us with:
- $a = -42$

Problem 2
- $\frac{3}{8}b - 23 = a$ where $b = 11$
- $a = \frac{3}{8}(11) - 23$
- $a = \frac{33}{8} - 23$
- $a = \frac{33}{8} - \frac{184}{8}$
- $a = -\frac{151}{8}$

Problem 3
- $a = \frac{5}{4}(b - 7)$ where $b = 0$
- $a = \frac{5}{4}(0 - 7)$
- $a = \frac{5}{4}(-7)$
- $a = -\frac{35}{4}$

Problem 4
- $a = 12b - 40$ where $b = 6$
- $a = 12(6) - 40$
- $a = 72 - 40$
- $a = 32$

Problem 5
- $a + 7b = 18$ where $b = -9$
- $a + 7(-9) = 18$
- $a + (-63) = 18$

- $a = 81$

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