INDIRECT COST CALCULATION  [IN REVERSE]

YOU WANT TO CALCULATE THE DIRECT COSTS
YOU KNOW WHAT THE TUITION, STIPEND AND EQUIPMENT COSTS ARE
YOU KNOW WHAT THE TOTAL COST IS
CALCULATION IS USING THE 2010 FED F&A RATE FOR WSU OF 52% (.52)

\[
[ \text{DIRECT COST } – \text{TUITION } – \text{STIPEND } – \text{EQUIPMENT}] \times (.52) + \text{DIRECT COST} = \text{TOTAL COST}
\]

\[
(.52) \times \text{DIRECT COST } + 1 \times \text{DIRECT COST } - (.52) \times [\text{TUITION } + \text{STIPEND } + \text{EQUIPMENT}] = \text{TOTAL COST}
\]

**OR USE THE FORMAT LISTED BELOW – SAME EQUATION**

\[
(.52) \times \text{DIRECT COST } - (.52) \times (\text{TUITION}) - (.52) \times (\text{stipend}) - (.52) \times (\text{equipment}) + 1 \times \text{DIRECT} = \text{TOTAL COST}
\]

\[
(1 + .52) \times \text{DIRECT COST} = \text{TOTAL COST} + (.52) \times (\text{TUITION}) + (.52) \times (\text{stipend}) + (.52) \times (\text{equipment})
\]

\[
1.52 \times \text{DIRECT COST} = \text{TOTAL COST} + (.52) \times (\text{TUITION}) + (.52) \times (\text{stipend}) + (.52) \times (\text{equipment})
\]

\[
\text{DIRECT COST} = (\text{TOTAL COST} + (.52) \times (\text{TUITION}) + (.52) \times (\text{stipend}) + (.52) \times (\text{equipment})) / \text{divided by} 1.52
\]

This formula can also be used if you know what the direct costs are and are trying to calculate the indirects.
It can also be used if you have the total costs and direct costs, but are trying to figure out what tuition, stipend or equipment costs are. **Subcontracts are not considered in this equation**
Whatever cost you are looking for becomes the “X” in the equation. If you are looking for more than one “X”, then this formula will not work – there can only be one unknown.

**EXAMPLE**

**DC** (direct costs) = **X** (unknown)

<table>
<thead>
<tr>
<th>TUITION</th>
<th>15,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQUIPMENT</td>
<td>23,000</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td>250,000</td>
</tr>
</tbody>
</table>

\[
\begin{align*}
[X - 15,000 - 23,000] \times .52 + X &= 250,000 \\
.52X - (38,000)(.52) + X &= 250,000 \\
1.52X - 19,760 &= 250,000 \\
1.52X &= 250,000 + 19,760 \\
1.52X &= 269,760 \\
X &= 269,760 / 1.52 \\
X &= 177,474
\end{align*}
\]

**DOUBLE CHECK OF CALCULATIONS FOR EXAMPLE**

| DIRECT COST | 177,474 |
| LESS TUITION | (15,000) |
| LESS EQUIPMENT | (23,000) |
| BASE | 139,474 |
| TIMES ICR RATE | .52 |
| INDIRECT COST | 72,526 |

| DIRECT COST | 177,474 |
| INDIRECT COST | 72,526 |
| TOTAL COST | 250,000 |
IN THIS CASE ---HOW MUCH IS THE TUITION?
GIVEN THE FOLLOWING INFORMATION-

DIRECT COSTS = 188,100
TOTAL COSTS = 274,764
F&A RATE = .52

NO STIPENDS, EQUIPMENT OR SUBCONTACTS IN BUDGET, ONLY TUITION
TUITION = X IN FORMULA

\[(188,100 \text{ minus } X) \times .52 + 188,100 = 274,764\]
\[(188,100)(.52) – (.52)(X) + 188,100 = 274,764\]
\[97,812 – .52X + 188,100 = 274,764\]
\[285,912 – .52X = 274,764\]
\[–.52X = 274,764 – 285,912\]
\[–.52X = –11,148\]
\[X = –11,148/–.52\]

11,148 divided by .52 = 21,438

Tuition = 21,438

DC 188,100
Tuition – 21,438
base 166,662 x .52 = 86,664 indirects

EXAMPLE OF NMSS GRANT WITH 10% INDIRECT COST RATE
TOTAL COST = 100,000

QUESTION = HOW MUCH ARE DIRECT COSTS? DIRECT COST = X IN EQUATION

\[(\text{DIRECT COSTS}) \times (.10) + \text{DIRECT COSTS} = 100,000\]
\[(X) \times (.10) + X = 100,000\]
\[.10X + X = 100,000\]
\[1.10X = 100,000\]
\[X = 100,000 / 1.10\]
\[X = 90,909 = \text{DIRECT COSTS}\]

90,909 (.10) = 9,091 = INDIRECT COSTS
IF THERE IS A SUBCONTRACT > 25K INVOLVED, THEN FORMULA LOOKS LIKE THIS

\[
\text{[DIRECT COST} - \text{TUITION} - \text{STIPEND} - \text{EQUIPMENT-SUBCONTRACT} + 25,000] \times 0.52 + \text{DIRECT COST} = \text{TOTAL COST}
\]

\[
0.52 \times \text{DIRECT COST} + \text{DIRECT COST} - (0.52) \times [\text{TUITION} + \text{STIPEND} + \text{EQUIPMENT+SUBCONTRACT} - 25,000] = \text{TOTAL COST}
\]

\[
1.52 \times \text{DIRECT COST} - 0.52 \times [\text{TUITION} + \text{STIPEND} + \text{EQUIPMENT+SUBCONTRACT} - 25,000] = \text{TOTAL COST}
\]

\[
1.52 \times \text{DIRECT COST} = (\text{TOTAL COST} + 0.52) \times [\text{TUITION} + \text{STIPEND} + \text{EQUIPMENT+SUBCONTRACT} - 25,000]
\]

DIRECT COST = [(TOTAL COST + 0.52) \times [\text{TUITION} + \text{STIPEND} + \text{EQUIPMENT+SUBCONTRACT} - 25,000)] \div 1.52

SAMPLE
LOOKING FOR DIRECT COST = X

\[
\text{TOTAL COST} = 500,000
\]
\[
\text{TUITION, STIPEND} = 0
\]
\[
\text{EQUIPMENT} = 5,000
\]
\[
\text{SUBCONTRACT} = 117,000
\]

\[
(X - 5,000 - 117,000 + 0-25000) \times 0.52 + X = 500,000
\]
\[
0.52 \times X - (0.52) \times (5,000 + 117,000 - 25,000) + X = 500,000
\]
\[
1.52 \times X - (0.52)(97,000) = 500,000
\]
\[
1.52 \times X = 500,000 + 50,440
\]
\[
1.52 \times X = 550,440
\]
\[
X = 550,440 \div 1.52 = 362,132
\]

DOUBLE CHECK
\[
(362,132 - 5,000 - 117,000 + 25,000) \times 0.52 + 362,132 = 500,000
\]
\[
(265,132) \times 0.52 + 362,132 = 500,000
\]
\[
137,868 + 362,132 = 500,000
\]