

Examples of Solving Chart/Structure Word Problems

| | Jennifer bought five cups of latte and two cups of coffee for a total of \$12.96. Each cup of latte costs \$0.87 more than one cup of regular coffee. How much does one cup of latte cost? | There are three consecutive odd integers. The sum of the second and third numbers decreased by the first is 47. What are the integers? | | | | | | | | | | | | | | | | |
|-----------------------------------|--|--|--------------|------|-------|--------|---|-------------|--------------|---------|-----|-------|----------|-------|-----|-------|---------|---|
| What's the question? | Problem Type: mixture <i>How much does one cup of latte cost?</i> | Problem Type: consecutive numbers <i>What are the integers?</i> | | | | | | | | | | | | | | | | |
| Draw Chart/Structure | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 20%;">Number</th> <th style="width: 20%;">Cost</th> <th style="width: 45%;">Value</th> </tr> </thead> <tbody> <tr> <td>Item 1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Item 2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td>-----</td> <td></td> </tr> </tbody> </table> | | Number | Cost | Value | Item 1 | | | | Item 2 | | | | Total | | ----- | | First number is x Second consecutive <u>odd</u> is $(x + 2)$ Third consecutive <u>odd</u> is $(x + 4)$ Sum is to add them together |
| | Number | Cost | Value | | | | | | | | | | | | | | | |
| Item 1 | | | | | | | | | | | | | | | | | | |
| Item 2 | | | | | | | | | | | | | | | | | | |
| Total | | ----- | | | | | | | | | | | | | | | | |
| Find comparison sentences, if any | Each cup of latte costs \$0.87 more than one cup of regular coffee $1 * y = .87 + x$ $y = .87 + x$ $2x + 5y = 12.96$ | The sum of the second and third numbers $(x + 2) + (x + 4)$ decreased by the first is 47 $- x = 47$ $(x + 2) + (x + 4) - x = 47$ | | | | | | | | | | | | | | | | |
| Fill in Chart/Structure | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 20%;">Number</th> <th style="width: 20%;">Cost</th> <th style="width: 45%;">Total</th> </tr> </thead> <tbody> <tr> <td>Latte</td> <td>5</td> <td>$(.87 + x)$</td> <td>$5(.87 + x)$</td> </tr> <tr> <td>Regular</td> <td>+ 2</td> <td>(x)</td> <td>$+ 2(x)$</td> </tr> <tr> <td>Total</td> <td>= 7</td> <td>-----</td> <td>= 12.96</td> </tr> </tbody> </table> | | Number | Cost | Total | Latte | 5 | $(.87 + x)$ | $5(.87 + x)$ | Regular | + 2 | (x) | $+ 2(x)$ | Total | = 7 | ----- | = 12.96 | <i>In this case the "structure" was defining the consecutive odd numbers. We'll use the translation of the comparison sentence.</i> |
| | Number | Cost | Total | | | | | | | | | | | | | | | |
| Latte | 5 | $(.87 + x)$ | $5(.87 + x)$ | | | | | | | | | | | | | | | |
| Regular | + 2 | (x) | $+ 2(x)$ | | | | | | | | | | | | | | | |
| Total | = 7 | ----- | = 12.96 | | | | | | | | | | | | | | | |
| Set up equation(s) Simplify | $5(.87 + x) + 2x = 12.96$ $4.35 + 5x + 2x = 12.96$ $4.35 + 7x = 12.96$ | $(x + 2) + (x + 4) - x = 47$ $x + 2 + x + 4 - x = 47$ $2x + 6 = 47$ | | | | | | | | | | | | | | | | |
| Solve | $4.35 + 7x = 12.96$ $7x = 8.61$ $x = 1.23$ | $x + 6 = 47$ $x = 41$ | | | | | | | | | | | | | | | | |
| Did you answer the question??? | Not yet: x was cost of regular coffee Latte is $.87 + x$, so $= 1.23 + .87 = 2.10$ <i>One cup of latte costs \$2.10</i> | Not yet: $x = 41$; so $(x + 2) = 43$, and $(x + 4) = 45$ <i>The integers are 41, 43, and 45.</i> | | | | | | | | | | | | | | | | |