

Car Project Calculation Example

The bank will extend a loan to Julie at 4% interest compounded monthly over 7 years so that she can buy a car. Julie has \$5000 for a down payment and the list price for the car is \$41,998 plus 13% tax. What is Julie's regular (monthly) payment for the car?

Step 1 → Find total amount

$$\$41,998 (0.13) + 41,998$$

$$= 5459.74 + 41,998$$

$$= \$47,457.74$$

$PV = \text{Total Cost} - \text{Down Payment}$

$$PV = 47,457.74 - 5000$$

$$PV = 42,457.74$$

Step 2 $\rightarrow$ Legend

$$PV = 42,457.74$$

$$i = \frac{r}{n} = \frac{0.04}{12} = 0.0033$$

$$n = 12$$

$$t = 7$$

Step 3 $\Rightarrow$ Calculate

$$R = \frac{PVi}{1 - (1+i)^{-nt}}$$

$$= \frac{(42,457.74)(0.0033)}{1 - (1 + 0.0033)^{-(12)(7)}}$$

$$= \frac{141.3842}{1 - (1.0033)^{-84}}$$

$$= \frac{141.3842}{1 - 0.7582}$$

$$\frac{141.3842}{0.2418}$$

$$= \$584.72$$

Step 4 $\rightarrow$ Finding Total Interest

multiply the monthly payment
by the # of months $(n)(t)$

$$= 584.72 \times (12)^h (7)^t$$

$$= \$49,116.48$$

$$49,116.48 - 42,457.74$$

$$= \$6,658.74$$

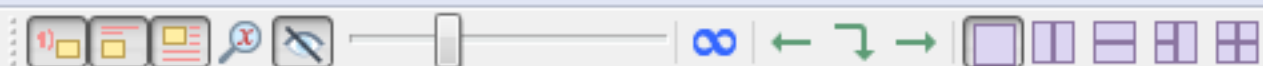
$\therefore$ The amount she paid was
\$6,658.74

Factor each completely.

1) $r^2 - 6r + 9$

$= (r-3)(r-3)$

$$\begin{array}{r}
 \textcircled{\times} \quad 9 \\
 \textcircled{+} \quad -6 \\
 \hline
 1, 9 \\
 -3, 3
 \end{array}$$



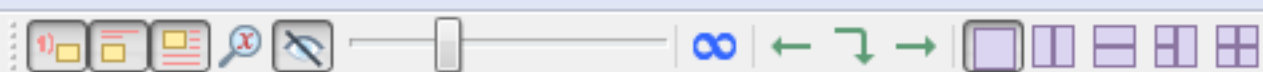
Factor each completely.

$$2) 25m^2 - 4$$

$$= \sqrt{25} - \sqrt{4}$$

$$= (5m - 2)(5m + 2)$$





Factor each completely.

$$10) \frac{5k^2}{\underline{5}} - \frac{125}{\underline{5}}$$

$$= \underline{5} (k^2 - 25)$$

$$= \underline{5} (k - 5) (k + 5)$$