Section 6.4:
Employee Benefits
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1. When Ina started work, she was given two paid days of vacation. For each four-month period she stays at the job, her vacation is increased by one day. Let $x$ represent the number of 4-month periods worked and $y$ represent the total number of vacation days. Write an equation that models the relationship between these variables. How much vacation time will she have after working for 6.5 years?

Months in 6.5 years = $6.5 \times 12 = \underline{78}$ months

Divide the number of months by 4 for the number of 4-month periods.

$78 \div 4 = \underline{19.5}$ four-month periods

$y = 2 + x$

$y = 2 + 19.5 = \underline{21.5}$

Ina will have ______ days of vacation in 6.5 years.
2. Martha’s employee benefits include family health care coverage. She contributes 18% of the cost. Martha gets paid biweekly and $108.00 is taken out of each paycheck for family health care coverage. How much does her employer contribute annually for the family coverage?

Martha contributes $26 \times 108 = 2,808$, which is 18% of the total.

Write an equation. Let \( x \) represent the total cost of Martha’s health insurance. Solve.

\[
0.18 \times x = 2808
\]

\[
\frac{0.18x}{0.18} = \frac{2,808}{0.18}
\]

\[
x = \frac{15600}{1}
\]

Subtract Martha’s portion: \( \frac{15600 - 2808}{1} = 12,792 \)

Martha’s employer contributes \( 12,792 \) of Martha’s health insurance costs.
3. Ali has worked at a fashion magazine for the last 5 years. Her current annual salary is $64,000. When she was hired, she was told that she had four days of paid vacation time. For each year that she worked at the magazine, she would gain another three days of paid vacation time to a maximum of 26 days. How many paid vacation days does she now get at the end of five years of employment?

\[
5 \times 3 = 15
\]

\[
4 + 15 = 19
\]
4. Liz works at Food For Thought magazine. Her employer offers her a pension. Liz's employer uses a formula to calculate the pension. Retiring employees receive 2.1% of their average salary over the last four years of employment for every year worked. Liz is planning on retiring at the end of this year after 20 years of employment. Her salaries for the last four years are $66,000; $66,000; $73,000; and $75,000. Calculate Liz's annual pension.

\[
\frac{66000 + 66000 + 73000 + 75000}{4} = 70000
\]

\[
P = 70000 \times (0.021)^{20} = 29400
\]
5. Dan’s employee benefits include health care coverage. His employer covers 78% of the cost, which is a contribution of $1,599.78 towards the total coverage amount. How much does Dan pay for his coverage?

\[
\frac{.78}{.78} \times = 1599.78
\]

\[
\begin{align*}
.78 & \quad = \quad .78 \\
X & \quad = \quad 2051
\end{align*}
\]

Dan's cost = $2051 - $1599.78 = $451.22
6. As part of their employee benefits, all workers at Light and Power Electric Company receive a pension that is calculated by multiplying the number of years worked times 1.875% of the average of their three highest years' salaries. Mia has worked for LPEC for 30 years and is retiring. Her highest salaries were $92,000, $94,800, and $96,250. Calculate Mia's pension.

\[
\frac{92000 + 94800 + 96250}{3} = 94,350
\]

\[
P = 94350 \cdot 0.01875 \cdot 30 = \$53071.88
\]
7. In Ben's state, the weekly unemployment compensation is 55% of the 26-week average for the two highest-salaried quarters. A quarter is three consecutive months. For July, August, and September, Ben earned a total of $22,400. In October, November, and December, he earned a total of $22,800. Determine Ben's weekly unemployment compensation.

\[
\frac{22400 + 22800}{2} = 22,600
\]

Yearly = \(22600 \times 4 = 90400\)

\[
\frac{90400}{52} = 1738.46
\]

\[1738.46 \times 0.55 = 956.15\]