3.1 Homework Solutions: Pg. 59 #1-17

Wednesday, September 9, 2015
9:21 AM

For Exercises 1–2, draw an arrow diagram to represent the expression. Then evaluate the expression for $m = 21$.

1. $\frac{m}{3} + 12$
2. $\frac{(m + 12)}{3}$

For Exercises 3–5, evaluate the expression.

3. $4(b - 2) + 3b - b^2$ for $b = 5$
4. $3k - k^4 + 5(k + 1) - k$ for $k = -1$
5. $5 - \frac{2y + 1}{3} + y^3 - 10y$ for $y = 4$

For Exercises 6–8, use the following information.

A landscaper plants a tree that is 5 feet tall. The tree grows 2 feet taller each year.

6. Complete the table to show the height of the tree during the first 6 years of growth.

Years of Growth	Height of Tree (ft)
0	5
1	7
2	9
3	11
4	13
5	15
6	17

7. Write an expression for the height of the tree after n years.
8. Use your expression to find the height of the tree after 8 years.

For Exercises 9–12, use the following information.

An ocean beach extends out into the ocean a length of 50 feet, but erosion causes it to lose 2 feet of length a year.

9. Complete the table to show the length of the beach during the first 5 years of erosion.

Years of Erosion	Length of Beach (ft)
0	50
1	48
2	46
3	44
4	42
5	40

10. Explain the process you used to find the length of the beach after 3 years of erosion.
11. Write an equation that models the length L of the beach after t years.
12. Find the length of the beach after 15 years if erosion continues at the same rate.

1. m → (Div. by 3) → $\frac{m}{3}$ → (Add 12) → $\frac{m}{3} + 12$

2. m → (Add 12 (groups)) → $(m+12)$ → (Divide by 3) → $\frac{m+12}{3}$

3. $4(5-2)+3(5)-(5)^2$
$4(3) + 3(5) - 25$
$12 + 15 - 25 = \boxed{2}$

4. $3(-1)-(-1)^4+5(-1+1)-(-1)$
$3(-1) - 1 + 5(-1+1)+1$
$3(-1) - 1 + 5(0)+1$
$-3 - 1 + 0 + 1 = \boxed{-3}$

5. $5 - \frac{2(4)+1}{3} + (4)^3 - 10(4)$
$5 - \frac{8+1}{3} + 64 - 40$
$5 - \frac{9}{3} + 64 - 40$
$5 - 3 + 64 - 40 = \boxed{26}$

6. * look on chart :)

7. Let n = # of years
H = height of tree (ft)
$H = 2n + 5$

8. $H = 2(8) + 5 = \boxed{21 \text{ ft}}$

9. * look on chart :)

10. Start with 50 ft and subtract 2 three times.

11. Let n = # of years erosion
L = length of beach (ft)
$L = -2n + 50$ or $L = 50 - 2n$

12. $L = -2(15) + 50 = \boxed{20 \text{ ft.}}$

For Exercises 13–15, use the following information.

The expression $12{,}500 + 700n$ describes the population of a town n years after the year 2000.

13. What was the town's population in 2010?

14. What does 12,500 represent in the expression?

15. What does 700 represent in the expression?

For Exercises 16–17, use the following information.

A wrestler is trying to lose a little weight in preparation for wrestling season. The expression $152 - 3t$ gives his weight (in pounds) during October, where t represents time in weeks.

16. What does 152 represent in the expression?

17. What does 3 represent in the expression?

13. $n = 10$

$12{,}500 + 700(10) =$ **19,500 people**

14. the initial population (pop. in 2000)

15. the yearly growth of population

16. his weight at beginning of October (initial weight)

17. # of lbs. each week that he loses.