Quiz #3

Math Time pp. 12

A.

  1. #8
  2. #11
  3. #14
  4. #15

B.

  1. #1
  2. #6
  3. #7
  4. #10

Quiz #3

A.

1. $a_1 = -11$, $d = -7 - (-11) = 4$,
$n = 23$, $S_{23} = ?$
$$S_n = \frac{n}{2}[2a_1 + (n-1)d]$$
$$S_{23} = \frac{23}{2}[2(-11) + (23-1)(4)]$$
$$S_{23} = \frac{23}{2}(66)$$
$$S_{23} = 759$$

2. $a_1 = x - 2$, $d = 4x - (x - 2) = 3x + 2$,
$n = 12$, $S_{12} = ?$

$$S_n = \frac{n}{2}[2a_1 + (n-1)d]$$
$$S_{12} = \frac{12}{2}[2(x-2) + (12-1)(3x+2)]$$
$$S_{12} = 6(35x + 18)$$
$$S_{12} = 210x + 108$$

3. $a_1 = 7, a_n = 29, d = 8 - 7 = 1$,
$n = ?$, $S_n = ?$
$$n = \frac{a_n - a_1}{d} + 1$$
$$n = \frac{29 - 7}{1} + 1$$
$$n = 23$$
$$S_n = \frac{n}{2}(a_1 + a_n)$$

$$S_{23} = \frac{23}{2}(7 + 29)$$
$$S_{23} = 414$$

$$\frac{-80}{-8} = \frac{-8n}{-8}$$
$$n = 10$$

4. $a_1 = -3$, $d = -1 - (-3) =$
2,
$n = 11$, $S_{11} = ?$
$$S_n = \frac{n}{2}[2a_1 + (n-1)d]$$
$$S_{11} = \frac{11}{2}[2(-3) + (11 - 1)(2)]$$
$$S_{11} = 77$$

2. $S_n = \frac{n}{2}(a_1 + a_n)$
$$1800 = \frac{18}{2}(a_1 + 185)$$
$$1800 = 9(a_1 + 185)$$
$$1800 = 9a_1 + 1{,}665$$
$$1800 - 1{,}665 = 9a_1$$
$$\frac{135}{9} = \frac{9a_1}{9}$$
$$a_1 = 15$$

B.

1. $S_n = \frac{n}{2}(a_1 + a_n)$
$$-80 = \frac{n}{2}(10 + (-26))$$

3. $a_n = a_1 + (n-1)d$
$$a_{10} = a_1 + (10 - 1)(3)$$
$$27.5 = a_1 + 27$$

$$a_1 = 0.5$$
$$S_n = \frac{n}{2}(a_1 + a_n)$$
$$S_{10} = \frac{10}{2}(0.5 + 27.5)$$
$$S_{10} = 140$$

4. $a_1 = 55,\ a_n = 195$
$$d = 60 - 55 = 5$$

$$n = \frac{a_n - a_1}{d} + 1$$
$$n = \frac{195 - 55}{5} + 1$$
$$n = 29$$
$$S_n = \frac{n}{2}(a_1 + a_n)$$
$$S_{29} = \frac{29}{2}(55 + 195)$$
$$S_{29} = 3,625$$