Practice Exercises

Insert the indicated number of arithmetic means between the given arithmetic extremes.

1. 2 and 32 [1]
2. -12 and 6 [3]
3. 68 and 3 [4]
4. 15x and 23x [1]
5. $9\sqrt{3}$ and $11\sqrt{3}$ [1]
6. $2\sqrt{5}$ and $14\sqrt{5}$ [2]
7. $\frac{3}{7}$ and $\frac{11}{7}$ [1]

Problem Set

Insert the indicated number of arithmetic means between the given arithmetic extremes.

1. -5 and 1 [2]
2. 24 and -12 [3]
3. 8 and 23 [4]
4. 4x and -16x [4]
5. $6\sqrt{5}$ and $12\sqrt{5}$ [1]
6. $-3\sqrt{3}$ and $15\sqrt{3}$ [5]
7. $\frac{1}{2}$ and 2 [2]

Problem Set

1. -5 and 1 [2]

$a_1 = -5$

$a_2 = -5 + 2 = -3$

$a_3 = -3 + 2 = -1$

$a_4 = 1$

$d = \dfrac{a_n - a_k}{n - k}$

$d = \dfrac{a_4 - a_1}{4 - 1}$

$d = \dfrac{1 - (-5)}{3}$

$d = 2$

2. 24 and -12 [3]

$a_1 = 24$

$a_2 = 24 + (-9) = 15$

$a_3 = 15 + (-9) = 6$

$a_4 = 6 + (-9) = -3$

$a_5 = -12$

$d = \dfrac{a_n - a_k}{n - k}$

$d = \dfrac{a_5 - a_1}{5 - 1}$

$d = \dfrac{-12 - 24}{4}$

$d = -9$

3. 8 and 23 [4]

$a_1 = 8$

$a_2 = 8 + 3 = 11$

$a_3 = 11 + 3 = 14$

$a_4 = 14 + 3 = 17$

$a_5 = 17 + 3 = 20$

$a_6 = 23$

$$d = \frac{a_n - a_k}{n - k}$$

$$d = \frac{a_6 - a_1}{6 - 1}$$

$$d = \frac{23 - 8}{5}$$

$d = 3$

4. 4x and -16x [4]

$a_1 = 4x$

$a_2 = 4x + (-4x) = 0$

$a_3 = 0 + (-4x) = -4x$

$a_4 = -4x + (-4x) = -8x$

$a_5 = -8x + (-4x) = -12x$

$a_6 = -16x$

$$d = \frac{a_n - a_k}{n - k}$$

$$d = \frac{a_6 - a_1}{6 - 1}$$

$$d = \frac{-16x - 4x}{5}$$

$d = -4x$

5. $6\sqrt{5}$ and $12\sqrt{5}$ [1]

$$A.M. = \frac{6\sqrt{5} + 12\sqrt{5}}{2}$$

$A.M. = 9\sqrt{5}$

6. $-3\sqrt{3}$ and $15\sqrt{3}$ [5]

$a_1 = -3\sqrt{3}$

$a_2 = -3\sqrt{3} + 3\sqrt{3} = 0$

$a_3 = 0 + 3\sqrt{3} = 3\sqrt{3}$

$a_4 = 3\sqrt{3} + 3\sqrt{3} = 6\sqrt{3}$

$a_5 = 6\sqrt{3} + 3\sqrt{3} = 9\sqrt{3}$

$a_6 = 9\sqrt{3} + 3\sqrt{3} = 12\sqrt{3}$

$a_7 = 15\sqrt{3}$

$d = \dfrac{a_n - a_k}{n - k}$

$d = \dfrac{a_7 - a_1}{7 - 1}$

$d = \dfrac{15\sqrt{3} - (-3\sqrt{3})}{6}$

$d = 3\sqrt{3}$

$a_1 = \dfrac{1}{2}$

$a_2 = \dfrac{1}{2} + \dfrac{1}{2} = 1$

$a_3 = 1 + \dfrac{1}{2} = \dfrac{3}{2}$

$a_4 = 2$

$d = \dfrac{a_n - a_k}{n - k}$

$d = \dfrac{a_4 - a_1}{4 - 1}$

$d = \dfrac{2 - \dfrac{1}{2}}{3}$

$d = \dfrac{1}{2}$

7. $\dfrac{1}{2}$ and 2 [2]