EXTRA PRACTICE - Exercises

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Unit I – The Structure of Mathematics Part E – Mathematical Model Lesson 2 – The Mathematics of Functions

For each of the following, use the idea of domain and range to find an open phrase which defines a function.

1. For a Domain	$D = \{0, 1, 2\}$	and a Range	$R = \{-1, 1, 3\}$
2. For a Domain	$D = \{-2, 0, 3, 5\}$	and a Range	$R = \{-7, -5, -2, 0\}$
3. For a Domain	$D = \{0, 2, 4, 6\}$	and a Range	$R = \{0, 4, 16, 36\}$
4. For a Domain	$D = \{-3, 0, 1, 3\}$	and a Range	$R = \{1, 7, 9, 13\}$

For the given function and domain in each of the following, find the range.

5.
$$f() = \frac{()}{()+12}$$
 For the Domain $D = \{0, 6, -6, 12, -12\}$

6. f() = 0.8 [200 - ()] For the Domain $D = \{80, 100, 175\}$ Note: The handicap of a bowler when his average is in the given domain

7. f () = 8 [() – 2] +7() For the Domain D = $\{-2, 0, 1, 2\}$

- 8. f() = 5 [2() -3] + 5() For the Domain $D = \{-6, -2, 2, 6\}$
- 9. $f() = 5() ()^2$ For the Domain $D = \{-5, 0, 5, 10\}$
- 10. f () = $\frac{3()}{()^2 16}$ For the Domain D = {²4, 2, 0, 4}

EXTRA PRACTICE — Answer Key

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Unit I – The Structure of Mathematics Part E – Mathematical Model Lesson 2 – The Mathematics of Functions

For each of the following, use the idea of domain and range to find an open phrase which defines a function.

- 1. For a Domain $D = \{0, 1, 2\}$ and a Range $R = \{-1, 1, 3\}$ f(n) = 2n 1
- 2. For a Domain $D = \{-2, 0, 3, 5\}$ and a Range $R = \{-7, -5, -2, 0\}$ f(n) = n 5
- 3. For a Domain $D = \{0, 2, 4, 6\}$ and a Range $R = \{0, 4, 16, 36\}$ $f(n) = n \cdot n$ or n^2
- 4. For a Domain $D = \{3, 0, 1, 3\}$ and a Range $R = \{1, 7, 9, 13\}$ f(n) = 2n + 7

For the given function and domain in each of the following, find the range.

5. $f() = \frac{()}{()+12}$ For the Domain $D = \{0, 6, -6, 12, -12\}$ $R = \{0, -1/3, -1, -1/2, -1, -1/2, -1, -1/2, -1, -1/2, -1, -1/2, -1, -1/2, -1, -1/2, -1, -1/2, -$

6. f() = 0.8 [200 - ()] For the Domain $D = \{80, 100, 175\}$ $R = \{96, 80, 20\}$ Note: The handicap of a bowler when his average is in the given domain

- 7. f() = 8[() 2] + 7() For the Domain $D = \{-2, 0, 1, 2\}$ $R = \{-46, -16, -1, 14\}$
- 8. f() = 5 [2() -3] + 5() For the Domain $D = \{-6, -2, 2, 6\}$ $R = \{-105, -45, 15, 75\}$
- 9. $f() = 5() ()^2$ For the Domain $D = \{-5, 0, 5, 10\}$ $R = \{-50, 0, 0, -50\}$
- 10. f () = $\frac{3()}{()^2 16}$ For the Domain D = {-4, 2, 0, 4} R = {-1/₃, 0}