Student Name: _____ Class: _____

Revision Worksheet

Grade 10 Advanced Mathematics (2019-2020)

Chapter 4- Inverses and Radical Functions and Relations

Instructions: *Read all questions carefully. Answer all questions.*

Chapter 4.1

1) If $f(x) = x^2 + 3$ and $g(x) = 3x - 2$, find $g[f(x)]$ and $f[g(x)]$

2) Find $[fog](x)$ and $[gof](x)$

a) $f(x) = 2x + 1$
$g(x) = 4x - 5$

b) $f(x) = x^2 + 1$
$g(x) = x - 7$

3) The formula $f = 3y$ converts yards y to feet f and $f = \frac{n}{12}$ converts inches n feet f. Write a composition of functions that converts yards to inches.

Chapter 4.2

4) Find the inverse of

a) $f(x) = -2x + 7$

b) $f(x) = \frac{4x+1}{5}$

5) Use the horizontal line test to determine whether the inverse of $f(x) = 2x^3 + 1$ is also a function

6) Faleh bought a computer. The sales tax rate was 6% of the sale price, and he paid AED 50 for shipping. Find the sale price if Faleh paid a total of AED 1322.

7) During the last month, Tarek has made two deposits of AED 45, made a deposit of double his original balance, and has withdrawn AED 35 five times. His balance is now AED 189. Write an equation that models this problem. How much money did Tarek have in his account at the beginning of the month?

Chapter 4.3

8) Graph each function. State the domain and range

a) $f(x) = -\sqrt{6x}$

b) $f(x) = \sqrt{x+1} - 2$

9) The area of a circle is given by the formula $A = \pi r^2$. What is the radius of a circle with an area of 300 square centimeters?

10) Graph each inequality

a) $y \geq \sqrt{x} + 3$

b) $y < 2\sqrt{x-5}$

Chapter 4.4

11) Simplify

a) $\sqrt{64x^6}$

b) $\sqrt[6]{\mathbf{4096}x^{12}y^{24}}$

12) The velocity V of an object can be defined as $V = \sqrt{\frac{2k}{m}}$, where *m* is the mass of an object and *k* is the kinetic energy in joules. Find the velocity in meters per second of an object with a mass of 17 grams and a kinetic energy of 850 joules.

Chapter 4.5

13) Simplify

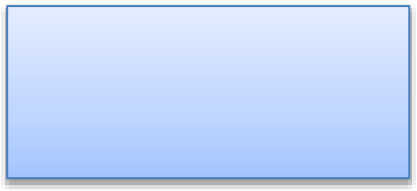
a) $\sqrt[3]{54}$

b) $6\sqrt{72} + 7\sqrt{98} - \sqrt{50}$

c) $2\sqrt[3]{18a^2b}.3\sqrt[3]{12ab^5}$

d) $\sqrt{\frac{x^4}{y^5}}$

14) What are the perimeter and the area of the rectangle?



$6 - \sqrt{2}$

$8 + \sqrt{3}$

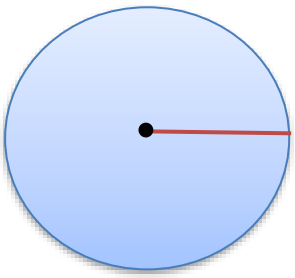
Chapter 4.6

15) Simplify

a) $a^{\frac{2}{3}} \cdot a^{\frac{1}{5}}$

b) $\frac{2a}{\sqrt[3]{b}}$

16) What is the area of the circle?



$r = 2a^{\frac{1}{3}}b^{\frac{2}{5}}c$

Chapter 4.7

17) Solve $\sqrt{2x+9}-2=5$

18) Solve $\sqrt{2x-5}+2>5$

19) The formula $t=2\pi\sqrt{\frac{l}{32}}$ represents the swing of a pendulum, where *t* is the time in seconds for the pendulum to swing back and forth and *l* is the length of the pendulum in feet. Find the length of a pendulum that makes one swing in 2.75 seconds