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Grade 7: Module 10 – Circles

Part 1

Note: Use the π key on your calculator for the computation unless otherwise noted.

1. The circumference of a circle is 24π centimeters. What is the area of the circle in terms of π? ($A = \pi r^2$)

A. 6π cm^2

B. 12π cm^2

C. 48π cm^2

D. 144π cm^2

Use the following information to answer Questions 2 and 3.

There is a flower garden that is planted with roses that are red, pink and white. The garden is in the shape of a circle and has a diameter of 10 feet.

2. What is the area of the garden in terms of π? ($A = \pi r^2$)

A. 5π ft^2

B. 20π ft^2

C. 25π ft^2

D. 100π ft^2

3. Mr. Peters wants to measure the circumference of the garden to order fencing. How much fence is needed? (Round your answer to the nearest hundredth.) ($C = \pi d$)

A. 31.42 feet

B. 15.71 feet

C. 10 feet

D. 5 feet

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4. A circle has a diameter of 18 units. What is the area of the circle to the nearest hundredth of a square unit? ($A = \pi r^2$)

A. 1,017.88 units^2

B. 254.47 units^2

C. 56.55 units^2

D. 28.27 units^2

5. What is the radius, in meters, of a circle that has a circumference of 64π meters? ($C = \pi d$)

A. 8

B. 16

C. 32

D. 64

6. If the radius of a circle is doubled, how does the area change?

A. The area of the figure doubles.

B. The area of the figure quadruples or is multiplied by 4.

C. The area of the figure does not change.

D. The area is of the figure is half the size of the original figure.

7. A circular pool has a radius of 15 feet. What is the circumference of the pool to the nearest foot? ($C = \pi d$)

A. 30 feet

B. 45 feet

C. 94 feet

D. 707 feet

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8. A circle has a circumference of 12π inches. What is the area of the circle in terms of π? ($A = \pi r^2$)

A. 144π in.^{2}

B. 36π in.^{2}

C. 12π in.^{2}

D. 6π in.^{2}

9. If the area of a circle is 36π units^2, what is the diameter? ($A = \pi r^2$)

A. 6 units

B. 12 units

C. 18 units

D. 36 units

10. A circle has a diameter of 18 units. What is the area of the circle? ($A = \pi r^2$)

A. 18 units^2

B. 81 units^2

C. 254.47 units^2

D. 20,611.99 units^2

11. Mr. Simpson designs a flower garden in the shape of a circle for his yard. The flower garden has a radius of 15 feet. What is the area of the circle in terms of π? ($A = \pi r^2$)

A. 225π ft^2

B. 205π ft^2

C. 30π ft^2

D. 15π ft^2

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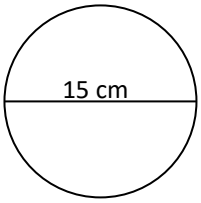
12. What is the area of the circle pictured below? ($A = \pi r^2$) Round to the nearest hundredth.



A. 7.5 cm^2

B. 15 cm^2

C. 47.12 cm^2

D. 176.71 cm^2

13. If the area of a circle is 81π $units^2$, what is the diameter?

A. 162 units

B. 81 units

C. 18 units

D. 9 units

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Part 2

14. The circumference of the moon is the approximate distance around a circle with a radius of 1,736 kilometers. Find the circumference of the moon. Round your final answer to the nearest tenth.

Show your work.

Answer _____ kilometers

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15. Mr. Thomas installed a lawn sprinkler in his backyard. The sprinkler that he installed rotates and can spray an area with a radius of up to 12 ft.

Write the area of the circle in terms of π. ($A = \pi r^2$)

Answer _____

What is the maximum area the sprinkler can cover? (Round your answer to the nearest hundredth.)

Show your work.

Answer _____

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Part 3

16. Judy baked a pizza with a diameter of 16 inches. Find the area of the pizza. Write the value of the area in terms of π.

Answer_____in.^{2}

Round your final answer to the nearest hundredth.($A = \pi r^2$)

Show your work.

Answer_____in.^{2}

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Answer Key for Grade 7 Module 10 Assessment			
Question Number	**Standard**	**Answer**	**Reasons for Answers**
1	7.G.4	D	A. Divided the diameter by 4 B. Found the radius, but did not square the value C. Doubled the diameter
2	7.G.4	C	A. Used the radius but did not square it. B. Multiplied the radius by 4 D. Squared the diameter
3	7.G.4	A	B. Used the radius to find the circumference instead of the diameter C. The diameter D. The radius
4	7.G.4	B	A. Squared the diameter instead of the radius C. Found the circumference D. Multiplied the radius times pi
5	7.G.4	C	A. Found the square root of the diameter B. Divided the diameter by 4 D. The diameter
6	7.G.4	B	A. Interpreted the doubling of the radius as the doubling of the area C. Misinterpreted the impact of the change in the radius D. Misinterpreted doubling
7	7.G.4	C	A. The diameter of the pool B. Multiplied the radius by 3 D. Found the area and rounded to the nearest whole number
8	7.G.4	B	A. Squared the diameter instead of the radius C. Gave the circumference of the circle with the units of area D. Did not square the radius of the circle
9	7.G.4	B	A. The radius is 6 units C. Divided 36 by 2 D. Interpreted the radius squared as the diameter
10	7.G.4	C	A. The value given in the problem B. Squared the radius of the circle D. Squared the radius to find the value of 81 and then squared 81 before multiplying by π
11	7.G.4	A	B. Multiplied incorrectly when squaring 15 C. Interpreted squaring 15 as multiplying by 2 D. Did not square the radius
12	7.G.4	D	A. The value of the radius is 7.5 B. The value of the diameter is 15 C. Value of the circumference
13	7.G.4	C	A. Doubled the radius squared B. The radius squared D. The radius
14	7.G.4	See below	
Circumference of the moon: $C = \pi D$ Radius = 1,736 km so Diameter = 3,472 km $C = \pi(3,472)$ C = 10,876.1937667….. C = 10,876.2 km			
15	7.G.4	See below	
$A = 144\pi$ $A = 452.39$ feet^2			

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16	7.G.4	See below

Pizza diameter is 16 inches so radius is 8 inches

Area = πr^2

Area = $(\pi)(8^2)$

Area = 64π

Area = πr^2

Area = $(\pi)(8^2)$

Area = 64π

Area = 201.06192988

Area of the pizza is 201.06 in.^{2}