Final Exam Review: Practice Set A Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 3

1. A floor has tiles arranged in 9 consecutive circles. The innermost circle contains 9 tiles. Each successive circle contains 9 more tiles than the previous. How many tiles are there in total?

A) 81 B) 396 C) 405 D) 729

2. Let f(x) = x3 – 6x2 + 10x - 8 and g(x) = x – 4. What is the solution set for ½ f(x) = g(x)?

1. -2, -4, 3 B) 0, 2, 4 C) -4, -2, 0 D) -1, -2, 2

3-A. The equations 2x2 +3x = 4 is rewritten in the form 2(x – h)2 + q = 0. What is the value of q?

1. -4 B) -41/8 C) 41/8 D) 4

3-B. The equations 2x2 +3x = 4 is rewritten in the form 2(x – h)2 + q = 0. What is the value of h?

A) -2 B) -3/4 C) 3/2 D) 2

4) A box with an open top is going to be constructed from a rectangular piece of cardboard.

* The cardboard measures 6 x 10 inches.
* The box is formed by cutting equal sized squares of side x, from the corners of the cardboard, then folding the sides up.

What is the domain of the function V(x) that gives the volume of the box?

 A) 0 < x < 3 B) 0 < x < 5 C) 0 < x < 6 D 0 < x < 10

5. A function is shown: $f\left(x\right)= \left\{\begin{matrix}-x^{2}+3x&x\leq -2\\4(x)^{3}&-2<x<1\\\frac{x+5}{x-1}&x\geq 1\end{matrix}\right.$

What is the value of f(-2) + 2f(-1) - f(3)

A) -22 B) -2 C) -10 D) 18

6. Which equation goes to positive infinite the fastest as x goes to infinity?

A) y = 50x2 B) y = ½ x3 C) y = 5lnx D) y = 2ex

7. Which expression is equivalent to: $\frac{tanθ(sin^{2}θ- cos^{2}θ)}{(sin^{4}θ- cos^{4}θ)}$

1. $\frac{tanθ}{sin^{2}θ-cos^{2}θ}$
2. $\tan(θ(sin^{\frac{1}{2}}θ-cos^{\frac{1}{2}}θ))$
3. $tanθ$
4. ½ $tanθ$

8. The diameter of an apple pie is 10 inches. If the intercepted arc (the crust) is 4 inches, what is the measure of the central angle made by cutting your slice of pie. Give your answer in radians.

1. 6π B) 2/5 C) 4/5 D) 4π/5

9. What is the value of x in the triangle below?

8 cm

 A) 16$\sqrt{3}$ cm B) 16 cm C) 8$\sqrt{3}$ cm D) 12cm

10. The amount of tissue paper used to cover a spherical ball is 900 square inches. What is the volume of the ball?

 SA = 4πr2 V = 4/3 πr3

A) 4500 π units cubed B) $\frac{4500}{\sqrt{π}}$ units cubed C) 300/π units cubed D) 300$\sqrt{π}$ units cubed

11. A farmer wants to buy between 100 and 125 acres of land. He is willing to pay up to $950 an acre.

 There is a rectangular field for sale that is 300 by 1,500 yards that is selling for $87,000. Would this property meet the farmer’s requirements?

**(1 acre = 43,560 ft2)**

1. Yes, the land is the right size and the price is low enough
2. No, the price is low enough, but there is too much land
3. No, the price is low enough, but there is not enough land
4. No, the land is the right size, but the price is too high

12. A student reporter wants to know the percentage of college students would be in favor in a small raise in student tuition to update the college facilities. Who would represent his population if he were to take a poll?

1. The total state population
2. All adults in the state
3. All students at that college
4. A random sample of students at that college

13. In a set of test scores that is normally distributed, a score of 52 is one standard deviation below the mean, and a score of 70 is two standard deviations above the mean. What was the mean scores?

 A) 9 B) 18 C) 58 D) 61

14. Which expression is equivalent to: $sinθ\left(\frac{\sin(θ)}{cosθ}+\frac{cosθ}{sinθ}\right)$

1. sinΘ B) sin2Θ + cosΘ C) $\frac{1}{cosθ}$ D) $\frac{sinΘ}{cosθ}$

15. The radii of two concentric circles are 5 and 4. Find the length of the Chord.

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| A) 3 B) 6 C) 9 D) 18 |  |

16. What is the approximate length of the arc on a circle formed by an angle of 5π/3 radians, and a radius of 5.

1. 13.08 B) 25.17 C) 26.17 D) 65.45

17. The length and width of a rectangular prism are $2\sqrt{5} and 4\sqrt{10}$ respectively. What could the height be if the volume is a rational number?

1. $2\sqrt{2}$ B) $2\sqrt{3}$ C) $2\sqrt{5}$ D) $2\sqrt{6}$

18. Which is a solution to the equation $\frac{x+ 3}{x -4}= \frac{x + 2}{x-3}$

 A) ½ B) -1 C) 1 D) 2

19. Which function is equivalent to y = x2 – 8x + 3

 A) y = (x – 4)2 -1

B) y = (x – 4)2 -7

C) y = (x – 4)2 -13

 D) y = (x – 4)2 + 7

20. Which expression is equivalent to $\frac{x + 3}{x^{2}- 4} ÷ \frac{x + 7}{x^{2}+9x+14}$

1. 3/2 B) 1 C) $\frac{x+10}{x-2}$ D) $\frac{x+3}{x-2}$