Algebra Review Task Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Accelerated Math III Period\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_

I. Order of Operations with Functions

Evaluate these without a calculator and then check your work using one.

1. If f(x) = 6x2 – 5x + 10, evaluate f(-2).\_\_\_\_\_\_\_\_\_

2. If f(x) = (x – 4)(x + 5)(4x + 3), evaluate f(-2). \_\_\_\_\_\_\_\_

3. If f(x) = 67(x – 1)/2 – 9, evaluate f(5).\_\_\_\_\_\_\_\_

4. If f(x) = 2 – 3log9(x + 5), evaluate f(-).\_\_\_\_\_\_\_\_\_\_

5. If f(x) = , evaluate f.\_\_\_\_\_\_\_\_\_\_

6. If f(x) = 5sin (6(x - 70º)) + 4, evaluate f(100º).\_\_\_\_\_\_\_\_\_\_

How did you know to use degrees in this problem?

7. If f(x) = 2sec x – 7, evaluate f(/6). \_\_\_\_\_\_\_\_\_\_

How did you know to use radians in this problem?

8. If f(x) = 8Arcsin (x + 3) – 5, evaluate f(-3.5). \_\_\_\_\_\_\_\_\_\_

Does it matter if you are in radians or degrees?\_\_\_\_Which should be used and why?

II. So, solve each of the following **algebraically** **without** using a calculator.

Check your work using one.

1. 3x + 4 = 15 How are #1 and #2 different?

2. 3(x + 4) = 15 Can #2 be solved another way?

3. 3log6 x + 9 = 15

How are #3 and #4 different?

4. 3log6(x + 9) = 15

5. 3cos x + = 3 (if 0 ≤ x < 2) Why do you need a calculator?

6. 3cos = 3 (if 0 ≤ x < 2) How is this different from #5?

How are all the above problems alike?

7. If f(x) is a function, solve af(x) + c = y for x.

8. If f(x) is a function, solve af(x + c) = y for x.

III. Keep solving these without technology. Check using it, though.

1. x2 – 9x = 0 How is this different from x2 = 9x ??

1’. 4x2 – x = 0 But what happens if we divide by x??

2. x2 – 9 = 0 How is this different from x2 = 9 ??

2’. 4x2 – 1 = 0

3. 2sin2x – sin x = 0 (if 0 ≤ x < 2) How is this different from 2sin2x = sin x?

4. 2sin2x – 1 = 0 (if 0 ≤ x < 2) How is this different from 2sin2x = 1 ?

5. x2 - 5x + 4 = 0 How is this different from x2 + 4 = 5x?

6. x2 – 5x + 4 = -2 So, how must we solve quadratics?

7. - 5 + 4 = 0 How can we identify quadratics?

8. csc2 x – csc x – 2 = 0 (if 0 ≤ x < 2) Can you check by graphing?

9. 2cos2 x – 3cos x + 1 = 0 (if 0 ≤ x < 2)

10. x2 + x + 10 = 7x

11. 4tan2x – 2tan x = 5 (if 0 ≤ x < 2) What do we do when quadratics don’t factor?

12. (x – 5)(2x – 3) = 0 Is this the same as x – 5 = 0 or 2x – 3 = 0?

13. (x – 5)(2x – 3) = 6 Is this the same as x – 5 = 6 or 2x – 3 = 6?

Is this the same as x – 5 = 2 or 2x – 3 = 3?

Why doesn’t factoring work here???

14. (3sinx – 2)(sin x – 1) = 2 (if 0 ≤ x < 2)

IV. Keep solving each of the following **algebraically** **without** using a calculator.

Check your work using one.

1. What property is helpful?

2.

3. Is = ?

4.

5.

6. (if 0 ≤ x < 2)

7. 3sec x = 6 (if 0 ≤ x < 2) Solve this at least 3 ways!

8. If f(x) = , write an equation for f-1(x).

V. Common misconceptions…

1. Is 2 + 3 = 5?\_\_\_\_\_\_\_ Is 22 + 32 = 52?\_\_\_\_\_\_\_\_

Is (2 + 3)2 = 22 + 2(23) + 32 = 52 ?\_\_\_\_\_\_\_

2. Is 32 + 42 = 52?\_\_\_\_\_\_\_ Is 3 + 4 = 5?\_\_\_\_\_\_\_

Is ?\_\_\_\_\_\_\_

3. When is cos2x + sin2 x = 1?\_\_\_\_\_\_\_\_\_ Find an x so that cos x + sin x ≠ 1.\_\_\_\_\_\_\_\_

So, when is cos x + sin x = 1? Find at least 2 ways to solve this.

Write an expression for cos x in terms of sin x.

4. Is tan2 θ + 1 = sec2 θ?\_\_\_\_\_\_\_ Is sec θ = tan θ + 1?\_\_\_\_\_\_\_

5. Write a sentence about squaring or taking roots of an equation.

6. Why is it difficult solve x2 + 4y = 7 ?

7. But how do we overcome that to solve cos2x + sin x = 1?

8. Solve cos2x + sin x = 1 (if 0 ≤ x < 2

9. Is (5 – 2)2 = 52 – 22?\_\_\_\_\_\_\_ Is cos(30º + 60º) = cos 30º + cos 60º?\_\_\_\_\_\_\_

Is ?\_\_\_\_\_\_\_ Is log2(2 + 8) = log2 2 + log2 8 ?\_\_\_\_\_\_\_

10. Write a sentence about distributing a function.

11. How does the graph of y = 4cos 3x differ from the graph of y = 4cos x?

How does the graph of y = 4cos 3x differ from the graph of y = cos 3x ?

Describe how the intersections of y1 = 4cos x and y2 = -2 differs from the

intersections of y1 = 4cos 3x and y2 = -2.

When solving 4cos 3x = -2 for 0 ≤ x < 2, what must be done to consider all possible

solutions?

Do that to solve 4cos 3x = -2 algebraically.

VI. Speaking of Fractions…

1. Is ?\_\_\_\_\_\_\_ Is ?\_\_\_\_\_\_\_ Is ?\_\_\_\_\_\_\_

Is ?\_\_\_\_\_\_\_ Is ?\_\_\_\_\_\_\_ Is ?\_\_\_\_\_\_\_

Is ?\_\_\_\_ Is ?\_\_\_\_ Is ?\_\_\_\_

2. Write a statement about reducing fractions.

3. Is ?\_\_\_\_\_\_\_ Is ?\_\_\_\_\_\_\_ What is the difference?

4. So is ?\_\_\_\_\_\_ Is ?\_\_\_\_\_\_