Alg2/Trig Daily Review Name Answers

Set A

1.

If $\sin\beta = \frac{2}{5}$ then $\cos(2\beta) =$

(1) $\frac{1}{5}$ (3) $\frac{11}{25}$

(2) $\frac{17}{25}$ (4) $-\frac{3}{5}$

2

2.

If the sum of $4-2i$ and $-7+8i$ were plotted in the complex plane, the result would fall in which of the following quadrants?

(1) I (3) III

(2) II (4) IV

2

3.

The solution set to the quadratic inequality $4x^2+7x-2\le 0$ is

(1) $\left\{x \mid -2 \le x \le \frac{1}{4}\right\}$ (3) $\{x \mid x<-3 \text{ or } x>1\}$

(2) $\{x \mid -3<x<1\}$ (4) $\left\{x \mid x \le -2 \text{ or } x \ge \frac{1}{4}\right\}$

1

4.

The largest solution, to the nearest degree, of the equation $5\sin^2 x+9\sin x-2=0$ on the interval $0^\circ \le x \le 360^\circ$ is which of the following?

(1) 12° (3) 168°

(2) 278° (4) 212°

3

5.

Solve the equation shown below for all values of x in simplest radical form.

$$x^2-2x-6=0$$

$x = 1 \pm \sqrt{7}$

Set B

6.

The smallest root of $x^4 + 2x^3 - 8 = 0$ is approximately

(1) -2.5 (3) -3.8

(2) 1.7 (4) 4.6

1

7.

A quadratic function of the form $y = ax^2 + bx + c$ has a leading coefficient, a, that is positive and a turning point at $(-6, -2)$. Which of the following represents the range of the quadratic function?

(1) $[-2, \infty)$ (3) $(-\infty, -2)$

(2) $[-6, \infty)$ (4) $(-6, \infty)$

1

8.

Which of the following represents the inverse of $y = 5x - 30$?

(1) $y = -5x + 30$ (3) $y = \frac{1}{5}x + 30$

(2) $y = -\frac{1}{5}x - 6$ (4) $y = \frac{1}{5}x + 6$

4

9.

The value of $\sin 100^\circ$ can be expressed equivalently as

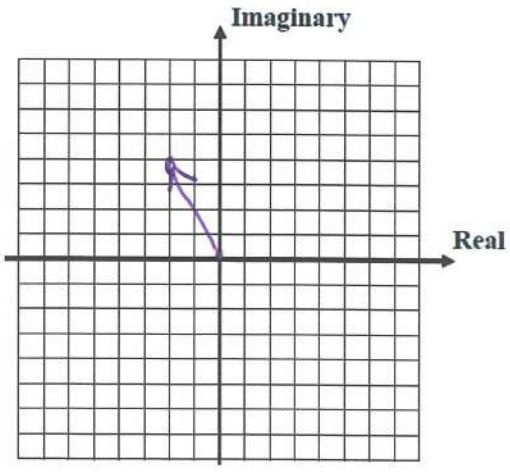
(1) $2\sin 50^\circ$ (3) $2\sin 50^\circ \cos 50^\circ$

(2) $\sin 50^\circ + \cos 50^\circ$ (4) $\cos^2 50^\circ - \sin^2 50^\circ$

3

10. Find the sum of the complex numbers *-4+i* and *2 + 3i*. Express your answer in *a + bi* form and then plot the result on the complex plane below.

$-2+4i$



Set C

11.

Which of the following quadratics would have roots that sum to -3?

(1) $3x^2 - 2x + 1 = 0$ (3) $5x^2 + 15x - 2 = 0$

(2) $x^2 - 3x + 8 = 0$ (4) $2x^2 + 8x - 1 = 0$

3

12.

Which of the following represents the range of the function $y = -4\sin(x) + 6$?

(1) $(2, 10)$ (3) $[-10, 2]$

(2) $[2, 10]$ (4) $(-10, 2)$

2

13.

A function, $y = f(x)$, has a y-intercept of 7. What is the y-intercept of the function $y = 3f(x) - 10$?

(1) 11 (3) -9

(2) -2 (4) -10

1

14.

An angle is drawn in standard position. If its terminal ray lies in the lies in the second quadrant and intersects the unit circle at an x-coordinate of $x = -\frac{1}{4}$, then the y-coordinate of intersection is

(1) $y = \frac{3}{4}$ (3) $y = \frac{\sqrt{15}}{4}$

(2) $y = -\frac{\sqrt{3}}{2}$ (4) $y = -\frac{1}{2}$

3

15.

For a particular real number a and base b it is known that $\log_b a = 2.75$. Determine the value of $\log_b(a^3)$.

8.25

Set D

16.

Which of the following sets gives the x-coordinates where the parabola $y = x^2 + 4x - 50$ and the line $y = 7x - 10$ intersect when drawn in the coordinate plane?

(1) $\{-5, 8\}$ (3) $\{-10, 4\}$

(2) $\{-2, 12\}$ (4) $\{0, 25\}$

1

17.

The complex fraction $\dfrac{\frac{1}{2} + \frac{3}{x}}{\frac{1}{2} - \frac{1}{2x}}$ can be simplified as

(1) $\dfrac{6x+1}{x}$ (3) $\dfrac{x+6}{x-1}$

(2) $\dfrac{6+x}{x}$ (4) $\dfrac{x+3}{x}$

3

18.

Which of the following values of x solves: $6^{2x-1} = 36^{-x}$?

(1) -4 (3) $1/4$

(2) $1/3$ (4) 4

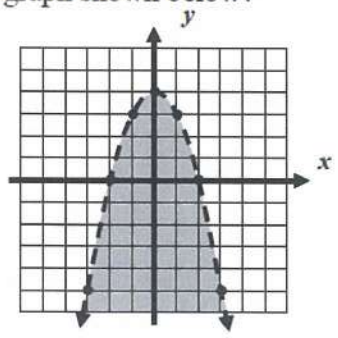
3

19.

Which of the following inequalities represents the graph shown below?

(1) $y > x^2 - 4$ (3) $y \le 4 - x^2$

(2) $y < 4 - x^2$ (4) $y \ge x^2 + 4$



2

20.

Solve the following equation for all value(s) of x: $|x + 3| - 9 = 2x$.

$x = -4$

Set E

21.

The solution set to the equation $x - \frac{10}{x} = 3$ is

(1) $\{-2, 5\}$ (3) $\{0, 6\}$

(2) $\{-1, 10\}$ (4) $\{-4, 2\}$

1

22.

Written in simplest radical form $\sqrt{-147}$ is equal to

(1) $-7\sqrt{3}$ (3) $3i\sqrt{7}$

(2) $-3\sqrt{7}$ (4) $7i\sqrt{3}$

4

23.

A circle whose diameter is 4 inches has a central angle measuring $\frac{\pi}{8}$ radians that intersects its circumference. Which of the following gives the length of the arc that is subtended by this angle?

(1) $\frac{\pi}{4}$ inches (3) $\frac{\pi}{2}$ inches

(2) $\frac{4}{\pi}$ inches (4) $\frac{32}{\pi}$ inches

We'll do this later. (free point!)

24.

The rational expression $\frac{2x^2 - 9x - 5}{3x^2 - 13x - 10}$ can be simplified to

(1) $\frac{2x+3}{x-7}$ (3) $\frac{x-5}{3x+1}$

(2) $\frac{2x-5}{3x+2}$ (4) $\frac{2x+1}{3x+2}$

4

25.

Combine and simplify the following subtraction.

$$\frac{8}{x^2+2x-3} - \frac{6}{x^2+3x}$$

$\frac{2}{x(x-1)}$

$\frac{2x+1}{x(x+3)(x-1)}$

Set F

26.

Which of the following quadratics would have the roots $1 \pm \sqrt{2}$?

(1) $x^2 + 3x - 6 = 0$ (3) $2x^2 + x + 1 = 0$

(2) $x^2 + 2x + 1 = 0$ (4) $x^2 - 2x - 1 = 0$

4

27.

Which expression is equivalent to $\frac{1}{x} - \frac{1}{x-1}$?

(1) $\frac{2x}{x-1}$ (3) $\frac{-1}{x^2 - x}$

(2) $\frac{1}{2x-1}$ (4) $\frac{2x-1}{x^2-1}$

3

28.

For $h(x) = \sin(2x) + \cos x$ what is the value of $h(30^\circ)$?

(1) 1 (3) $\sqrt{3}$

(2) $\sqrt{2}$ (4) $2\sqrt{3}$

3

29.

Upon completing the square, the trinomial $x^2 + 10x + 2$ would be written as

(1) $(x-5)^2 - 4$ (3) $(x+10)^2 - 78$

(2) $(x-10)^2 - 5$ (4) $(x+5)^2 - 23$

4

30.

Algebraically determine the intersection point(s) of the two logarithmic functions given below.

$y = \log_3(x-6)$ and $y = 3 - \log_3 x$

ans: $(9, 1)$

hint:
to do algebraically, put logs together on 1 side & think of the log property
$\log A + \log B = \log AB$

$x = 9, \; y = 1$

(or hint: Solve graphically in calculator using change of base formula.)

Set G

31.

Which of the following is the exact value of $\csc 60^\circ$?

(1) $\frac{1}{2}$ (3) $\frac{2\sqrt{3}}{3}$

(2) $\frac{\sqrt{5}}{2}$ (4) $\frac{\sqrt{3}}{2}$

3

32.

When the fractions $\frac{5}{x-3}$ and $\frac{15}{3-x}$ are summed, the result is

(1) $\frac{15}{x^2-9}$ (3) -6

(2) $\frac{-10}{x-3}$ (4) 5

2

33.

Written in factored form, the expression $x^3 - x^2 - 25x + 25$ is

(1) $(x-3)(x+5)(x-1)$ (3) $(x-5)(x+5)(x-1)$

(2) $(x+25)(x+1)(x-1)$ (4) $(x+5)(x+5)(x+1)$

3

34.

Which of the following values of x solves: $\log_3(2x-5) = 2$?

(1) 7 (3) -5

(2) 6.5 (4) -11

1

35.

What value(s) of x are *not* in the domain of $h(x) = \frac{x+6}{2x^2+x-1}$? Justify your answer.

$x \neq \frac{1}{2}, x \neq -1$

Set H

********** Start here Finished etext Practice Tests 1 & 2

Which of the following sets represents all solutions to the equation $5|x-7|=30$?

(1) $\{\pm 1\}$ (3) $\{-2, 11\}$

(2) $\{\pm 8\}$ (4) $\{1, 13\}$ _____

Set

1.

A quickly decaying radioactive substance loses 12% of its radioactive mass each hour. If a sample of the substance originally contains 500 grams of radioactive mass, after how many hours, to the nearest hour, will the sample contain only 50 grams of radioactive mass?

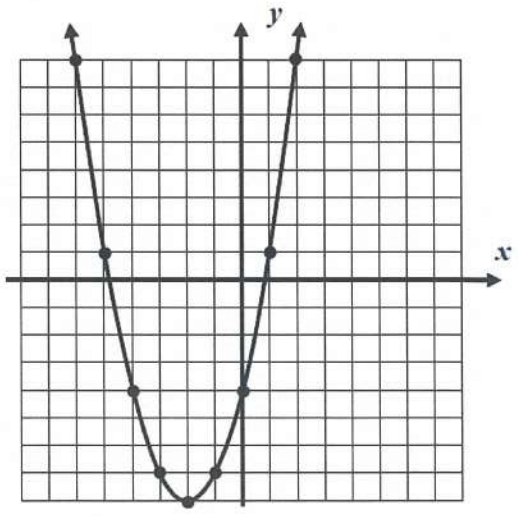
(1) 9 hours (3) 14 hours

(2) 11 hours (4) 18 hours _____

2.

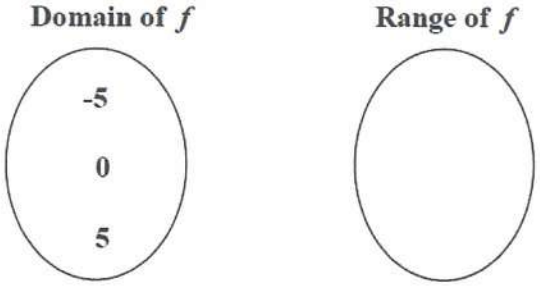
Find the larger root of $2x^2-11x+3=0$ to the nearest *tenth*.

The function $y=f(x)$ is shown below. On the same axes, sketch an accurate graph of $y=\frac{1}{2}f(x)$.



Given that $\sin\theta=\frac{\sqrt{7}}{3}$ determine the value of $\cos(2\theta)$ in simplest form.

Given below is the domain $\{-5, 0, 5\}$. Show how this set gets mapped to a range by the function $f(x) = x^2$ and explain why this function is *not* one-to-one.



Determine the equation for the inverse of $y = \frac{3}{7}x + 9$ in simplest $y = ax + b$ form.

Express the following complex calculation in simplest $a + bi$ form. Show the work that leads to your answer.

$$(2+3i)(4-2i) - i(-4+i)$$

Find all complex solutions, in simplest $a + bi$ form, to the following equation.

$$\frac{19}{x^2} + 1 = \frac{8}{x}$$