

NAME: _____

1. 010607b, P.I. A2.A.22

If $\sqrt{2x-1} + 2 = 5$, then x is equal to

[A] 2 [B] 4 [C] 5 [D] 1

2. 080602b, P.I. A2.A.22

What is the solution of the equation

$$\sqrt{2x-3} - 3 = 6?$$

[A] 39 [B] 42 [C] 6 [D] 3

3. 010802b, P.I. A2.A.22

What is the value of x in the equation

$$\sqrt{3+x} - 5 = -2?$$

[A] 3 [B] 6 [C] 12 [D] 46

4. 010921b, P.I. A2.A.22

Solve for x : $\sqrt{x+18} - 2 = 2$

5. 080104b, P.I. A2.A.22

The solution set of the equation $\sqrt{x+6} = x$ is

[A] $\{\}$ [B] $\{3\}$ [C] $\{-2\}$ [D] $\{-2,3\}$

6. 010305b, P.I. A2.A.22

What is the solution set of the equation

$$\sqrt{9x+10} = x$$

[A] $\{10, -1\}$ [B] $\{-1\}$

[C] $\{9\}$ [D] $\{10\}$

7. 060214b, P.I. A2.A.22

What is the solution set of the equation

$$x = 2\sqrt{2x-3}?$$

[A] $\{2,6\}$ [B] $\{2\}$ [C] $\{\}$ [D] $\{6\}$

8. 060528b, P.I. A2.A.22

Solve for all values of q that satisfy the equation $\sqrt{3q+7} = q+3$.

9. 010427b, P.I. A2.A.22

Solve algebraically: $\sqrt{x+5} + 1 = x$

10. 060629b, P.I. A2.A.22

Solve algebraically for x : $\sqrt{3x+1} + 1 = x$

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11. 060915b, P.I. A2.A.22

What is the solution set of the equation

$$y = 2 + \sqrt{y^2 - 12} ?$$

[A] {4} [B] {-4,4} [C] {} [D] {2}

12. 080302b, P.I. A2.A.22

What is the value of x in the equation

$$\sqrt{5 - 2x} = 3i ?$$

[A] -2 [B] 1 [C] 7 [D] 4

13. 080821b, P.I. A2.A.22

The number of dogs, D , housed at a county animal shelter is modeled by the function

$D = 4\sqrt{2M} + 50$, where M is the number of months the shelter has been open. How many months will it take for 74 dogs to be housed at the shelter?

14. 010323b, P.I. A2.A.22

A wrecking ball suspended from a chain is a type of pendulum. The relationship between the rate of speed of the ball, R , the mass of the ball, m , the length of the chain, L , and the

force, F , is $R = 2\pi\sqrt{\frac{mL}{F}}$. Determine the

force, F , to the *nearest hundredth*, when $L = 12$, $m = 50$, and $R = 0.6$.

15. fall9923b, P.I. A2.A.22

The period of a pendulum (T), in seconds, is the length of time it takes for the pendulum to make one complete swing back and forth.

The formula $T = 2\pi\sqrt{\frac{L}{32}}$ gives the period T

for a pendulum of length L in feet. If you want to build a grandfather clock with a pendulum that swings back and forth once every 3 seconds, how long, to the *nearest tenth of a foot*, would you make the pendulum?

16. 080528b, P.I. A2.A.22

The lateral surface area of a right circular cone, s , is represented by the equation

$s = \pi r\sqrt{r^2 + h^2}$, where r is the radius of the circular base and h is the height of the cone. If the lateral surface area of a large funnel is 236.64 square centimeters and its radius is 4.75 centimeters, find its height, to the *nearest hundredth of a centimeter*.

[1] C _____

[2] B _____

[3] B _____

[2] -2, and appropriate work is shown, such as solving the equation algebraically, graphically or using trial and error with at least three trials and appropriate checks.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.

or [1] -2, but no work or fewer than three trials and appropriate checks are shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure. _____

[5] B _____

[6] D _____

[7] A _____

[4] -2 and -1, and appropriate work is shown.

[3] Appropriate work is shown, but one computational error is made.

or [3] Appropriate work is shown, but only one value of q is found.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as squaring only the left side of the equation.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or [1] -2 and -1, but no work is shown.

[0] -2 or -1, but no work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[8] obviously incorrect procedure. _____

[4] 4, and appropriate work is shown.

[3] Appropriate work is shown, but one computational error is made.

or [3] Appropriate work is shown, but $x = -1$ is not rejected.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made.

or [2] The correct quadratic equation is written in standard form, but no further correct work is shown.

or [2] A quadratic equation of equal difficulty is solved appropriately.

[1] Both sides of the equation are squared correctly, but no further correct work is shown.

or [1] 4, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[9] incorrect procedure. _____

[4] 5, and appropriate algebraic work is shown.

[3] Appropriate work is shown, but one computational error is made.

or [3] 5 and 0, and appropriate work is shown, but the zero is not rejected.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as squaring $x - 1$ incorrectly.

or [2] 5, but a method other than an algebraic solution is used, such as graphing or trial and error with at least three trials and appropriate checks.

or [2] A correct quadratic equation is written in standard form, such as $0 = x^2 - 5x$, but no further correct work is shown.

or [2] An incorrect quadratic equation of equal difficulty is solved appropriately.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or [1] An incorrect equation of a lesser degree of difficulty is solved appropriately.

or [1] 5, but no work is shown.

[0] 5 and 0, and no work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[10] obviously incorrect procedure.

[11] A

[12] C

[2] 18, and appropriate work is shown, such as an algebraic or a graphic solution or trial and error with at least three trials and appropriate checks.

[1] Appropriate work is shown, but one computational or graphing error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] The trial-and-error method is used and at least six systematic trials and appropriate checks are shown, but no solution is found.

[1] 18, but no work or fewer than three trials with appropriate checks are shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[13]

[2] 65,797.36, and appropriate work is shown.

[1] Appropriate work is shown, but one computational or rounding error is made.

or [1] An incorrect derivation of the equation is solved appropriately.

or [1] 65,797.36, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[14]

incorrect procedure.

[2] Answer of 7.3, with appropriate substitution shown.

[1] Answer given, but not rounded correctly.

or [1] Correct answer only, no work shown.

or [1] Shows correct substitution, but answer is incorrect.

or [1] Log equation, no substitution of values.

[0] A zero response is completely incorrect, irrelevant, or incoherent; or is a correct response that was obtained by an obviously incorrect procedure.

[15]

or [0] Substitutes 3 for L .

[4] 15.13, and appropriate work is shown, such as solving the equation

$$236.64 = \pi(4.75)\sqrt{(4.75)^2 + h^2}.$$

[3] Appropriate work is shown, but one computational or rounding error is made.

[2] Appropriate work is shown, but two or more computational or rounding errors are made.

or [2] Appropriate work is shown, but one conceptual error is made.

[1] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

or [1] Correct substitution of values is made into the equation, but no further correct work is shown.

or [1] 15.13, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[16] incorrect procedure.
