

NAME: _____

1. 080601b, P.I. A2.N.1

The expression $4^{\frac{1}{2}} \cdot 2^3$ is equal to

- [A] $4^{\frac{3}{2}}$ [B] $8^{\frac{3}{2}}$ [C] 16 [D] 4

2. 080218b, P.I. A2.N.1

The expression $\frac{3^{\frac{1}{3}}}{3^{-\frac{2}{3}}}$ is equivalent to

- [A] 3 [B] $\frac{1}{\sqrt[3]{3}}$ [C] $\sqrt{3}$ [D] 1

3. 010217b, P.I. A2.N.1

The value of $\left(\frac{3^0}{2^{\frac{1}{3}}}\right)^{-1}$ is

- [A] $-\frac{1}{9}$ [B] 9 [C] $\frac{1}{9}$ [D] -9

4. 060208b, P.I. A2.A.10

If x is a positive integer, $4x^{\frac{1}{2}}$ is equivalent to

- [A] $4\frac{1}{x}$ [B] $4\sqrt{x}$ [C] $2x$ [D] $\frac{2}{x}$

5. 010413b, P.I. A2.A.10

The expression $b^{-\frac{3}{2}}$, $b > 0$, is equivalent to

- [A] $(\sqrt[3]{b})^2$ [B] $\frac{1}{(\sqrt[3]{b})^2}$
 [C] $-(\sqrt{b})^3$ [D] $\frac{1}{(\sqrt{b})^3}$

6. 080807b, P.I. A2.A.10

If $n > 0$, the expression $\left(\frac{1}{n}\right)^{-\frac{2}{3}}$ is equal to

- [A] $\sqrt[3]{n^2}$ [B] $-n^{\frac{3}{2}}$
 [C] $\sqrt{n^3}$ [D] $-n^{\frac{2}{3}}$

7. 060912b, P.I. A2.A.8

Which expression is equivalent to

$$(\sqrt{a^2 b^{\frac{1}{2}}})^{-1}?$$

- [A] $\frac{1}{ab^{\frac{1}{4}}}$ [B] $a^{-2}b^{\frac{1}{2}}$
 [C] $-ab^{\frac{1}{4}}$ [D] $-ab^2$

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8. 060708b, P.I. A2.A.11

The volume of a soap bubble is represented by the equation $V = 0.094\sqrt{A^3}$, where A represents the surface area of the bubble. Which expression is also equivalent to V ?

- [A] $(0.094A^3)^{\frac{1}{2}}$ [B] $0.094A^6$
 [C] $0.094A^{\frac{2}{3}}$ [D] $0.094A^{\frac{3}{2}}$

9. 060419b, P.I. A2.A.11

The expression $\sqrt[4]{16a^6b^4}$ is equivalent to

- [A] $2a^2b$ [B] $4a^2b$
 [C] $4a^{\frac{3}{2}}b$ [D] $2a^{\frac{3}{2}}b$

10. 010617b, P.I. A2.A.8

When simplified, the expression $(\sqrt[3]{m^4})(m^{-\frac{1}{2}})$ is equivalent to

- [A] $\sqrt[6]{m^5}$ [B] $\sqrt[3]{m^{-2}}$
 [C] $\sqrt[4]{m^3}$ [D] $\sqrt[5]{m^{-4}}$

11. 080322b, P.I. A2.N.1

Find the value of $(x+2)^0 + (x+1)^{-\frac{2}{3}}$ when $x = 7$.

12. 080921b, P.I. A2.N.1

Evaluate the expression

$$(x+3)^{\frac{1}{2}} + (x-3)^0 + (x+2)^{-\frac{2}{3}} \text{ when } x = 6.$$

13. 060602b, P.I. A2.A.8

If $f(x) = x^{-\frac{3}{2}}$, then $f(\frac{1}{4})$ is equal to

- [A] 8 [B] -2 [C] -4 [D] $-\frac{1}{8}$

14. 060516b

If $(a^x)^{\frac{2}{3}} = \frac{1}{a^2}$, what is the value of x ?

- [A] 2 [B] 1 [C] -1 [D] -3

15. 080325b

Meteorologists can determine how long a storm lasts by using the function

$t(d) = 0.07d^{\frac{3}{2}}$, where d is the diameter of the storm, in miles, and t is the time, in hours. If the storm lasts 4.75 hours, find its diameter, to the nearest tenth of a mile.

[1] C _____

[2] A _____

[3] B _____

[4] B _____

[5] D _____

[6] A _____

[7] A _____

[8] D _____

[9] D _____

[10] A _____

[2] $1\frac{1}{4}$ or an equivalent answer, and

appropriate work is shown.

[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] $1\frac{1}{4}$ or an equivalent answer, 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

[11] incorrect procedure.

[2] $4\frac{1}{4}$ or 4.25, and appropriate work is shown.

[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] $4\frac{1}{4}$ or 4.25, 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

[12] incorrect procedure.

[13] A _____

[14] D _____

[2] 16.6, and appropriate work is shown.

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

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

or [1] A correct substitution of 4.75 for t is made, but no further correct work is shown.

or [1] 16.6, 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

[15] incorrect procedure.