

1. 010703b

If $\sqrt{x-a} = b$, $x > a$, which expression is equivalent to x ?

[A] $b + a$

[B] $b^2 - a$

[C] $b - a$

[D] $b^2 + a$

2. 080924b

In physics class, Esther learned that force due to gravity can be determined by using the

formula $F = \frac{Gm_1m_2}{r^2}$. Solve for r in terms of

F , G , m_1 , and m_2 .

3. 080622b

The volume of any spherical balloon can be

found by using the formula $V = \frac{4}{3}\pi r^3$. Write

an equation for r in terms of V and π .

4. 010926b

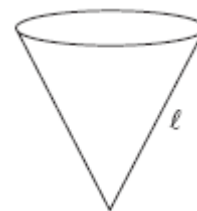
The volume of Earth can be calculated by

using the formula $V = \frac{4}{3}\pi r^3$. Solve for r in terms of V .

5. 080725b

The slant height, ℓ , of the conical water tank shown in the accompanying diagram is

$\ell = \sqrt[3]{\frac{8v}{\pi}}$. Solve for v , in terms of ℓ and π .



[1] D _____

[2] $r = \sqrt{\frac{Gm_1m_2}{F}}$ or $r = \pm\sqrt{\frac{Gm_1m_2}{F}}$, 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, such as solving for r^2 .

or [1] $r = \sqrt{\frac{Gm_1m_2}{F}}$ or $r = \pm\sqrt{\frac{Gm_1m_2}{F}}$,

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

[2] incorrect procedure.

[2] $r = \sqrt[3]{\frac{3V}{4\pi}}$ or $r = \left(\frac{3V}{4\pi}\right)^{\frac{1}{3}}$ 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] $\sqrt[3]{\frac{3V}{4\pi}}$ or $\left(\frac{3V}{4\pi}\right)^{\frac{1}{3}}$ or an equivalent answer

is found, and appropriate work is shown, but an equation is not written.

or [1] $r = \sqrt[3]{\frac{3V}{4\pi}}$ or $r = \left(\frac{3V}{4\pi}\right)^{\frac{1}{3}}$ 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

[3] incorrect procedure.

[2] $r = \sqrt[3]{\frac{3V}{4\pi}}$ 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] $r = \sqrt[3]{\frac{3V}{4\pi}}$ 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

[4] incorrect procedure.

[2] $v = \frac{\pi\ell^3}{8}$, and appropriate work is shown.

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

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

[1] $v = \frac{\pi\ell^3}{8}$, 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

[5] incorrect procedure.
