1. Which expression is equivalent to $(5^{-2}a^3b^{-4})^{-1}$?

   1. $\dfrac{10b^4}{a^3}$

   2. $\dfrac{25b^4}{a^3}$

   3. $\dfrac{a^3}{25b^4}$

   4. $\dfrac{a^2}{125b^5}$

$$5^2\, a^{-3}\, b^4$$

$$= \frac{25\; b^4}{a^3}$$

2. Simplify: $\left(\dfrac{9x^2z^4}{49x^{-2}}\right)^{\frac{1}{2}}$

   1. $\dfrac{9.5xz^2}{24.5x^{-1}}$

   2. $\dfrac{3xz^2}{7x^{-1}}$

   3. $\dfrac{3xz^2}{7x}$

   (4.) $\dfrac{3x^2z^2}{7}$

$$\left(\frac{9x^{2-(-2)}\; z^4}{49}\right)^{\frac{1}{2}}$$

$$= \frac{\sqrt{9}\left(x^4 z^4\right)^{\frac{1}{2}}}{\sqrt{49}} = \frac{3x^2z^2}{7}$$

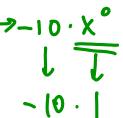3. What is the product of $-3x^2y$ and $(5xy^2 + xy)$?

    1. $-15x^3y^3 - 3x^3y^2$
    2. $-15x^3y^3 - 3x^3y$
    3. $-15x^2y^2 - 3x^2y$
    4. $-15x^3y^3 + xy$

$$-3x^2y(5xy^2 + 1xy)$$

$$-15x^3y^3 - 3x^3y^2$$

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4. Evaluate: $-10x^0$

    1. 10 2. -10
    3. $-10x$ 4. $10/x$

$$-10 \cdot x^0$$

$$-10 \cdot 1$$

5. Solve for c when,

$$a = \frac{b + 2c - d}{3}$$

$$\frac{a}{T}$$

$$3a = b + 2c - d$$

$$\frac{3a - b + d}{2} = \frac{2c}{2}$$

$$c = \frac{3a - b + d}{2}$$

6. Solve for x.

$$\sqrt{3x + 3} + 1 = x + \cancel{3}^{2}$$

$$\left(\sqrt{3x+3}\right)^2 = (x+1)^2$$

$$3x + 3 = x^2 + 2x + 1$$

$$-3x - 3 \qquad\qquad -3x - 3$$

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

$$= (x - 2)(x + 1)$$

$$x = 2, -1$$

$$\sqrt{3(2) + 3} + 1 = (2) + 2 \checkmark$$

$$\sqrt{3(-1) + 3} + 1 = (-1) + 2$$

7. Let circle O be described by
$$(x - 3)^2 + (y + 1)^2 = 4$$
Find the center and radius of the circle.

$(x-h)^2 + (y-k)^2 = r^2$

center: $(3, -1)$

radius: 2

center: (h, k)
radius: r

Solve for x.

$$\sqrt{x - 2} + 1 = x - 1$$
$$\phantom{\sqrt{x-2}} -1 \quad\quad -1$$

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

$$x - 2 = x^2 - 4x + 4$$

$$0 = x^2 - 5x + 6$$

$$= (x-2)(x-3)$$

$$x = 2, \; 3$$

$$\sqrt{2 - 2} + 1 = 2 - 1 \checkmark$$

$$\sqrt{3 - 2} + 1 = 3 - 1 \checkmark$$