Answers
1. B 2. C 3. D 4. B 5. A 6. C 7. C 8. A 9. C 10. A

Answer Explanations

1. **B.** In this problem, we are given the expression $\sqrt[3]{64x^6y^5}$ and asked to find an equivalent expression. First, we should break down this expression $\sqrt[3]{64}\times\sqrt[3]{x^6}\times\sqrt[3]{y^5}$. Now that our expression has been broken down we can individually simplify each component $\sqrt[3]{64}=4$, $\sqrt[3]{x^6}=x^{6/2}=x^3$, $\sqrt[3]{y^5}=y^{5/3}=y\sqrt[3]{y^2}$. After simplifying each component, we can multiply them back together to determine the equivalent expression $4\times x^3\times y\sqrt[3]{y^2}\rightarrow 4x^3y\sqrt[3]{y^2}$. Therefore, answer choice (B) is correct.

2. **C.** In this problem, we are given an expression containing two radical components that are being multiplied. We can rewrite this equation to make the multiplication process less erroneous. $3\sqrt[3]{9}\times3\sqrt[3]{3}\rightarrow3\sqrt[3]{3^2}\times3\sqrt[3]{3^1}\rightarrow3^{3/3}\times3^{2/3}\times3^{3/3}\times3^{1/3}$. Remember, when multiplying exponents with the same base we add the exponents together. $3^{3/3}\times3^{2/3}\times3^{3/3}\times3^{1/3}=3^{9/3}=3^3=27$. Therefore, answer choice (C) is correct.

3. **D**. In this problem, we are given the expression $\left(\frac{27}{b^8}\right)^{-\frac{1}{3}}$ and asked to find an equivalent expression. We can rewrite this expression to the simplification much easier. $\left(\frac{27}{b^8}\right)^{-1/3}\rightarrow\frac{1}{\left(\frac{27}{b^8}\right)^{\frac{1}{3}}}\rightarrow\frac{1}{\sqrt[3]{\left(\frac{27}{b^8}\right)}}$. Now that we have rewritten our expression we can take the cube root of $27 \text{ and } b^8$ $\frac{1}{\sqrt[3]{\left(\frac{27}{b^8}\right)}}=\frac{1}{\frac{3}{b^2}}=\frac{b^2}{3}$, which makes answer choice (D) correct.

4. **B.** In this problem, we are given the equation $n+3=\sqrt{2a-5}$ and asked to find the value of the constant *a*. First, we must get rid of the radical in order to further simplify our equation $n+3=\sqrt{2a-5}\rightarrow(n+3)^2=\left(\sqrt{2a-5}\right)^2$. Given that our *n*-value is equal to 4 we can plug this value in before expanding or equation. $(n+3)^2=\left(\sqrt{2a-5}\right)^2=(4+3)^2=2a-5\rightarrow49=2a-5\rightarrow27$, which makes answer choice (B) correct.

5. **A.** In this problem, we are given the equation $x-6=\sqrt{4x-28}$ and asked to find the solution set for the equation. First, we must get rid of the radical in order to further simplify our equation $x-6=\sqrt{4x-28}\rightarrow(x-6)^2=\left(\sqrt{4x-28}\right)^2\rightarrow x^2-12x+36=4x-28\rightarrow x^2-16x+64=0\rightarrow(x-8)^2=0$. Knowing that the only solution to the given equation is *8,* we can conclude that answer choice (A) is correct.

6. **C.** In this problem, we are given the equation $2x^{\frac{1}{2}}+3x=0$ and asked to find the least value of x that is a solution to the equation above. Therefore, we can factor out a $x^{1/2}$ and find our solutions to the given equation. $2x^{\frac{1}{2}}+3x=0\rightarrow x^{\frac{1}{2}}\left(3x^{\frac{1}{2}}+2\right)=0$.

$\left(x^{\frac{1}{2}}\right)^2=0\rightarrow x=0 \mid 3x^{\frac{1}{2}}+2=0\rightarrow x^{\frac{1}{2}}=\frac{-2}{3}\rightarrow\left(x^{\frac{1}{2}}\right)^2=\left(\frac{-2}{3}\right)^2\rightarrow x=\frac{4}{9}$. Therefore, from our evaluation we can conclude that the solution with the least value is *0* which makes answer choice (C) correct.

7. **C.** In this problem, we are given the equation $x=\sqrt{11+5x}-3$ and asked to find the values of x that satisfy the equation. First, we must get rid of the radical in order to further simplify our equation

$x=\sqrt{11+5x}-3\rightarrow(x+3)^2=\left(\sqrt{11+5x}\right)^2\rightarrow\ x^2+6x+9=11+5x\rightarrow x^2+x-2\rightarrow(x+2)(x-1)=0.$

Knowing that our solutions to the given equation are $-2 \text{and} 1$, we can conclude answer choice (C) is correct.

8. **A.** In this problem, we are given the equation $x-6\sqrt{x}+8=0$ and asked to find the values of x that satisfy the equation. First, we must get rid of the radical in order to further simplify our equation

$x-6\sqrt{x}+8=0\rightarrow(x+8)^2=\left(6\sqrt{x}\right)^2\rightarrow$

$x^2+16x+64=36x\rightarrow x^2-20x+64=0\rightarrow(x-4)(x-16)=0\rightarrow x=4,16$.

Given that the x solutions to the equation are $4 \text{and} 16$, we can conclude answer choice (A) is correct.

9. **C.** In this problem, we are given the rational equation $\frac{3x-5}{4x-5}=\frac{5}{6}$ and asked to find the solution to the equation. First, we can cross multiply and combine like terms to find our x-value.

$\frac{3x-5}{4x-5}=\frac{5}{6}\rightarrow 18x-30=20x-25\rightarrow -2x=5\rightarrow x=-\frac{5}{2}$. Knowing that our x-value is -2.5, we can conclude answer choice (C) is correct.

10. **A.** In this problem, we are given the equation $18y-6\sqrt{y}=0$ and asked to find the least value of y that satisfies the given equation. First, we must get rid of the radical in order to further simplify our equation.

$18y-6\sqrt{y}=0\rightarrow 18y=6\sqrt{y}\rightarrow\ (3y)^2=\left(\sqrt{y}\right)^2\rightarrow 9y^2=y$. Now that the radical has been removed, we can simplify our equation and solve for our y-solutions. $9y^2=y\rightarrow 9y^2-y=0\rightarrow y(9y-1)=0$.

$y=0 \mid 9y-1=0\rightarrow 9y=1\rightarrow y=\frac{1}{9}$. Knowing that our y-solutions are $0 \text{and} \frac{1}{9}$, we can conclude that answer choice (A) is correct.