6-1 Lesson Quiz

Rational Exponents and Properties of Exponents

1. How can you write $\sqrt[5]{n^4}$ using rational exponents?

Ⓐ $n^{\frac{4}{5}}$

Ⓑ $n^{\frac{5}{4}}$

Ⓒ n^{20}

Ⓓ $\frac{n^4}{n^5}$

2. The formula $A = 6V^{\frac{2}{3}}$ relates the surface area A, in square units, of a cube to the volume V, in cubic units. What is the volume, in cubic inches, of a cube with surface area 486 in.^{2}?

3. The solution of $(10^{\frac{x}{6}})(10^{\frac{x}{8}}) = 10^{10}$ is

$x =$ _____.

4. What is the solution of $9^{x-8} = 3^{4x-12}$?

Ⓐ $-\frac{2}{3}$

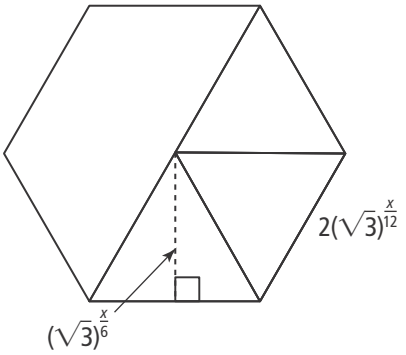
Ⓑ $\frac{4}{3}$

Ⓒ 2

Ⓓ -2

5. The diagram below shows a hexagon-shaped tile used for flooring. Each hexagon tile has an area of $18\sqrt{3}$ in.^{2}. Solve for x. Then find the exact length of each side of the hexagon. (*Hint:* Six equilateral triangles make one hexagon.)

$x =$ _____; side length = _____ in.



6-1 Lesson Quiz

Rational Exponents and Properties of Exponents

1. How can you write $\sqrt[5]{n^4}$ using rational exponents?

   (A) $n^{\frac{4}{5}}$

   (B) $n^{\frac{5}{4}}$

   (C) n^{20}

   (D) $\frac{n^4}{n^5}$

2. The formula $A = 6V^{\frac{2}{3}}$ relates the surface area A, in square units, of a cube to the volume V, in cubic units. What is the volume, in cubic inches, of a cube with surface area 486 in.^{2}? **729 in.^{3}**

3. The solution of $(10^{\frac{x}{6}})(10^{\frac{x}{8}}) = 10^{10}$ is

   $x =$ **$\frac{240}{7}$**.

4. What is the solution of $9^{x-8} = 3^{4x-12}$?

   (A) $-\frac{2}{3}$

   (B) $\frac{4}{3}$

   (C) 2

   (D) -2

5. The diagram below shows a hexagon-shaped tile used for flooring. Each hexagon tile has an area of $18\sqrt{3}$ in.^{2}. Solve for x. Then find the exact length of each side of the hexagon. (*Hint:* Six equilateral triangles make one hexagon.)

   $x =$ **12**; side length = **$2\sqrt{3}$** in.