Directions: Answer the following question(s).

1 What is the solution to this equation?

$$x^3 = 15$$

A. $x = \sqrt[3]{15}$
B. $x = 15^3$
C. $x = \sqrt{15}$
D. $x = 5$

2 Select *two* possible values for *x* in the equation $x^3 = 216$.

A. 6
B. $\sqrt[3]{216}$
C. $3\sqrt[3]{24}$
D. $6\sqrt[3]{6}$

3 Which values of x satisfy the equation $x^2 = 20$? Choose all that are correct.

A. $x = \sqrt{20}$
B. $x = 20^2$
C. $x = -\sqrt{20}$
D. $x = (-20)^2$
E. $x = \sqrt{-20}$

4 Which of these is a solution to the equation $x^3 = 36$, $x^2 = 42$, or $x^3 = 55$? Select *three* that apply.

A. $x = \sqrt{36}$
B. $x = \sqrt{42}$
C. $x = \sqrt{55}$
D. $x = \sqrt[3]{36}$
E. $x = \sqrt[3]{42}$
F. $x = \sqrt[3]{55}$

5 Evaluate each of the equations below. Drag and drop the correct value of n beside each equation.

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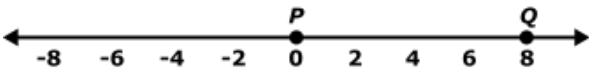
6 Which of the following statements is correct based on the number line below?



A. $\sqrt{68}$ is to the right of Point Q because it is less than 8.
B. $\sqrt{68}$ is between points P and Q because it is less than 0 and greater than 8.
C. $\sqrt{68}$ is between points P and Q because it is greater than 0 and less than 8.
D. $\sqrt{68}$ is to the right of Point Q because it is greater than 8.

7 Brett used a calculator to find the decimal expansions of various square roots as shown.

$\sqrt{3}$ = 1.732050807...
$\sqrt{6}$ = 2.449489742...
$\sqrt{11}$ = 3.316624790...
$\sqrt{15}$ = 3.872983346...

According to these expansions, which of the following expressions is the greatest?

A. $3 + \sqrt{15}$
B. $5 + \sqrt{6}$
C. $8 - \sqrt{3}$
D. $10 - \sqrt{11}$

8 Drag each irrational number to the location on the number line that shows its approximate value.

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9 Between which two numbers does $\sqrt{11}$ lie on a number line?

A. 5 and 6
B. 3 and 4
C. 4 and 5
D. 10 and 11

Directions: Answer the following question(s).

10 Find the value or values of x that satisfy the equation $x^2 = 64$. Show all steps.

11 Select all of the values of n that satisfy the equation $n^2 = 64$.

A. $n = -32$
B. $n = (\sqrt{64})^2$
C. $n = -8$
D. $n = 8$
E. $n = (\sqrt{64})$
F. $n = 32$

12 Which of these are rational numbers? Choose ALL that are correct.

A. $\sqrt{16}$
B. $\sqrt[3]{8}$
C. $\sqrt{8}$
D. $\sqrt[3]{25}$
E. $\sqrt{49}$
F. $\sqrt[3]{27}$

13 Which statement about $\sqrt{15}$ and π is true?

A. Both numbers can be written as fractions with integer numerators and denominators.
B. Both numbers can be categorized as natural numbers because they are positive.
C. Both numbers can be written as decimal numbers that neither terminate nor repeat.
D. Both numbers can be categorized as rational.

14 What is the solution to the equation below?

$$n^3 = 21$$

A. $n = 7$
B. $n = \sqrt{21}$
C. $n = \frac{1}{7}$
D. $n = \sqrt[3]{21}$

15 What is the value of the expression below?

$$\sqrt[3]{27}$$

A. 3
B. 9
C. 24
D. 81

16 Sara has a gift box with a volume of 64 in^3. The length, width, and height of the box are all y inches. Sara needs to determine if a stack of 6-inch-by-6-inch note papers will fit on the bottom of the box.

Complete the sentences below by choosing the correct responses from the drop-down menus.

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17 What is the solution to the equation?

$$x^2 = \frac{7}{3}$$

A. $x = \frac{7}{6}$
B. $x = \left(\frac{7}{3}\right)^2$
C. $x = \pm\sqrt[3]{\frac{7}{3}}$
D. $x = \pm\sqrt{\frac{7}{3}}$

18 What is the value of the following expression?

$$\sqrt[3]{\frac{216}{27}}$$

A. $\frac{2}{9}$
B. 72
C. 8
D. 2

19 Drag and drop the correct rational number next to its equivalent decimal expansion.

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Directions: Answer the following question(s).

20 Which of these statements are correct? Select *three* that apply.

A. A solution to the equation $x^2 = 4$ is $x = 16$.

B. A solution to the equation $x^2 = 64$ is $x = 4$.

C. A solution to the equation $x^2 = 81$ is $x = 9$.

D. A solution to the equation $x^3 = 8$ is $x = 24$.

E. A solution to the equation $x^3 = 125$ is $x = 5$.

F. A solution to the equation $x^3 = 216$ is $x = 6$.

21 An equation is shown below with a missing value.

$8 = \sqrt[3]{?}$

Enter the missing value into the box in the equation.

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