Which of the following is an irrational number?

a. $\frac{5}{4}$

b. $\frac{-15}{10}$

c. $\sqrt{20}$

d. $\sqrt{9}$





What is the rational number equivalent to $2.\overline{50}$?

a. $2\frac{50}{99}$

b. $2\frac{43}{95}$

c. $2\frac{3}{4}$

d. $2\frac{37}{45}$







Which of the following is equivalent to $\frac{2^{-6}}{2^{-7}}$?

a. $2^{-1}$

b. $2^{-2}$

c. $2^{1}$

d. $2^{2}$





There are $\left(9^4\right)^4 \bullet 9^2$ bacteria in the petri dish. What is the total number of bacteria are in the petri dish?

a. $9^{15}$

b. $9^{20}$

c. $9^{17}$

d. $9^{18}$

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What value is equivalent to $\left(\frac{1 \bullet 2 \bullet 3}{1 \bullet 5}\right)^3 \times \left(\frac{7^0}{3^{-3}}\right)^2 \times 3^{-6}$?

a. $\frac{54}{5}$

c. $\frac{6}{125}$

b. $\frac{216}{5}$

d. $\frac{216}{125}$



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Which of the following is equivalent to $\frac{4^2}{4^7}$?

a. $\frac{1}{16384}$

c. $\frac{1}{16}$

b. $\frac{1}{4096}$

d. $\frac{1}{1024}$





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Simplify $\frac{7^3 \bullet 7^3}{7^2}$

a. $7^4$

c. $7^2$

b. $7^3$

d. $7^7$



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What is the simplified expression for $\frac{4^{-2} \bullet 5^4 \bullet 4^7}{5^5 \bullet 4^4}$?

a. $\frac{4}{5}$

c. $\frac{4^4}{5}$

b. $\frac{4}{5^4}$

d. $\frac{5^4}{4^4}$

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What calculation could be used to find $y^5 = 243$

a. $y = \frac{\sqrt{243}}{5}$

b. $y = \sqrt{243}$

c. $y = \frac{243}{5}$

d. $y = \sqrt[5]{243}$



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Which of the following is an irrational number?

a. $\sqrt{4}$

b. $\sqrt{16}$

c. $\sqrt{10}$

d. $\sqrt{25}$





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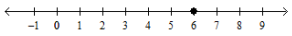
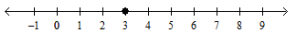
Which of the following shows the location $\sqrt{16}$ accurately on a number line?

a.

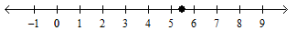



b.




c.


d.



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Which value is not in scientific notation?

a. $79.8 \times 10^{-2}$

b. $7.76 \times 10^{-2}$

c. $8.88 \times 10^{-4}$

d. $8.09 \times 10^{-5}$

What is the sum of $2.7 \times 10^7$ and $3.7 \times 10^7$?

a. $0.64 \times 10^{14}$
b. $6.4 \times 10^7$
c. $6.4 \times 10^{14}$
d. $0.64 \times 10^7$





Multiply $\left(2.4 \times 10^4\right) \bullet \left(1.2 \times 10^9\right)$. Express your answer in scientific notation.

a. $2.88 \times 10^{36}$
b. $2.88 \times 10^{36}$
c. $2.88 \times 10^{13}$
d. $2.88 \times 10^{-13}$







The distance of star Marvin from its Sun is approximately $7.9 \times 10^9$ kilometers, and the distance of star Volky from the same Sun is $1.4 \times 10^{10}$ kilometers. About how many more kilometers is the distance of Volky from the Sun than the distance of Marvin from the Sun?

a. $6.1 \times 10^{10}$ kilometers
b. $6.5 \times 10^9$ kilometers
c. $6.1 \times 10^9$ kilometers
d. $6.5 \times 10^{10}$ kilometers





A closed container has $1.07 \times 10^{29}$ atoms of a gas. Each atom of the gas weighs $1.28 \times 10^{-30}$ grams. Which of the following shows and explains the approximate total mass, in grams, of all the atoms of the gas in the container?

a. 0.14 grams, because $(1.07 \bullet 1.28) \bullet \left(10^{29} \bullet 10^{-30}\right) = 1.3696 \bullet 10^{-1}$
b. 0.24 grams, because $(1.07 + 1.28) \bullet \left(10^{29} \bullet 10^{-30}\right) = 2.35 \bullet 10^{-1}$
c. 2.35 grams, because $(1.07 + 1.28) \bullet \left(10^{29} \bullet 10^{-30}\right) = 2.35$
d. 1.37 grams, because $(1.07 \bullet 1.28) \bullet \left(10^{29} \bullet 10^{-30}\right) = 1.3696$