Domain Assessment • **The Number System**

1. What is the decimal expansion of $\frac{1}{8}$?

A. 0.1

B. 0.125

C. 0.25

D. $0.\overline{3}$

2. Which of the following is true about the decimal expansion of $\frac{1}{11}$?

A. ends in 625

B. 3 repeating

C. 09 repeating

D. 27 repeating

3. Convert the following repeating decimal into a fraction:

0.1111111...

A. $\frac{1}{5}$

B. $\frac{1}{7}$

C. $\frac{1}{8}$

D. $\frac{1}{9}$

4. Which decimal below is the best approximation of the irrational number π?

A. 1.41

B. 1.62

C. 2.72

D. 3.14

5. Which of the following sets contains only irrational numbers?

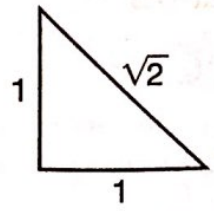
A. $\pi, \sqrt{2}, 4.238905...$

B. $\frac{1}{7}, 3.14, 5$

C. $2\frac{1}{4}, \sqrt{5}, 7.717$

D. $0.\overline{1}, 0.\overline{09}, 0.1\overline{6}$

6. The figure below is a right triangle.



Which is the best approximation of the hypotenuse of the triangle?

A. 1.21

B. 1.41

C. 1.73

D. 2.24

7. Between which two whole numbers is $\sqrt{11}$?

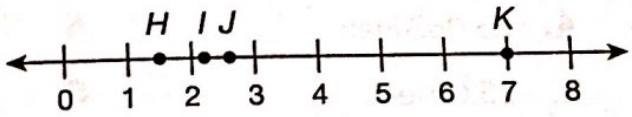
A. 1 and 2

B. 2 and 3

C. 3 and 4

D. 4 and 5

8. Points *H*, *I*, *J*, and *K* are plotted on the number line below.



Which point on the number line represents $\sqrt{7}$?

A. *H*

B. *I*

C. *J*

D. *K*

9. Which of the following fractions does not end with a decimal expansion of zeros?

A. $\frac{1}{3}$

B. $\frac{1}{4}$

C. $\frac{1}{5}$

D. $\frac{1}{8}$

10. A flagpole measures $25\frac{1}{11}$ feet tall. Which repeating decimal represents this height?

A. $25.08\overline{3}$ feet

B. $25.\overline{09}$ feet

C. $25.\overline{1}$ feet

D. $25.1\overline{6}$ feet

11. Which is the best approximation of $\frac{\pi + 9}{3}$?

A. 1.27

B. 2.09

C. 3.14

D. 4.05

12. Which of the following sets contains only rational numbers?

A. $0.\overline{3}, 0.1\overline{6}, 3.14$

B. $\frac{1}{9}, \pi, 4\frac{1}{6}$

C. $0.\overline{2}, \frac{3}{2}, \sqrt{7}$

D. $0.\overline{8}, 0.\overline{87}, 0.16075423...$

13. In an art class, Jorge constructs a 2 feet by 4 feet frame for a painting he just finished. He uses the Pythagorean theorem to find the diagonal of the frame, which is $\sqrt{20}$ feet. He then concludes that the diagonal must be at least 5 feet. Is he correct in his conclusion?

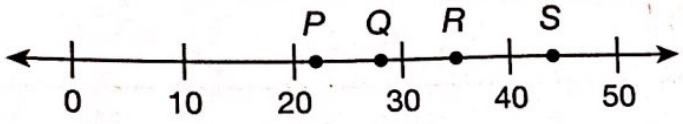
A. Yes, because $2 + 4 \leq 6$.

B. Yes, because $\sqrt{20} \approx 5.48$.

C. No, because $4^2 = 16$ and $5^2 = 25$, so $\sqrt{20}$ must be between 4 and 5.

D. No, because $\sqrt{20} = 2^2 + 3^2$, so $\sqrt{20}$ must be between 2 and 3.

14. The formula for the circumference of a circle is πd, where d is the diameter. Kim measures the diameter of each of four pools in his neighborhood and uses this formula to find their circumferences, in feet. They are plotted on the number line below.



Which point best represents the pool with a diameter of 14 feet?

A. P

B. Q

C. R

D. S

15. Which irrational number below is approximately equal to 2?

A. $\sqrt{3}$

B. $\sqrt{5}$

C. $\sqrt{7}$

D. $\sqrt{8}$