Grade 8 Math practice questions
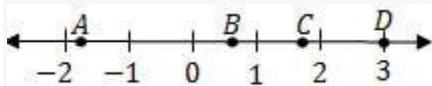
1. Convert 0.2 ? into a fraction.

1. 1/5
2. 11/50
3. 2/9
4. 2/7

2. What is the decimal expansion of 5/6?

1. 0.(56)
2. 0.83
3. 0.56
4. 1.2

3. Which number is the closest approximation to π/4?

1. 0.85
2. 1.0
3. 0.785
4. 1.273

4. Without using a calculator, identify which point on the number line could be √3?.

1. Point A
2. b. Point B
3. Point C
4. Point D

5. Simplify $5^2 \times 5^4 \times 5^{-4} \times 5^{-2}$.

1. 1
2. 5
3. 0
4. 2.5

6. Simplify $(2/3)^{-3}$.

1. 8/27
2. 27/8
3. –8/27
4. -27/8

7. Solve the equation for x: $x^2=16$

1. x=4
2. x=±4
3. x=8
4. x=±8

8. Solve the equation for x: $x^3=-27$

1. x=-9
2. x=±9
3. x=-3
4. x=±3

9. What is the decimal notation of 7×10^{-4}?

1. 70,000
2. 7,000
3. 0.00007
4. 0.0007

10. What is 0.0143 written in scientific notation?

1. 1.43×10
2. 1.43×10^2
3. 1.43×10^{-1}
4. 1.43×10^{-2}

Answers and Explanations

1. C: When converting a decimal whose value repeats itself indefinitely, write the repeating digit or digits in the numerator. In this problem, the repeating digit is 2. In the denominator, place 9 for every repeating digit, then reduce the fraction to lowest terms. In this problem a single 9 is in the denominator, so the answer is 2/9. Another example is $0.\overline{24}= 24/99=8/33$

2. B: 5/6 can be rewritten as $5 \times 6 = 0.83$?

3. C: You can approximate ?=3.14. Then $3.14 \times 4 = 0.785$

4. C: See that $22 = 4$. Since $22 > 3$, we know $\sqrt{22} > \sqrt{3}$ which is to say $\sqrt{3} < 2$. Similarly, see that $\sqrt{3} > 1$. This means that $\sqrt{3}$ is between 1 and 2. The only point between those on the number line is point C.

5. A: When multiplying powers that have the same base, the exponents are added up, and the base remains the same. Here it would be: $5^{2+4+(-4)+(-2)})=5^0$. Then, using the zero exponent rule of $a^0=1$ whenever $a \neq 0$, we find that the answer is $5^0=1$

6. B: The negative exponent will take the reciprocal of the base, then the exponent will distribute to both the numerator and denominator and the powers will be simplified. $(2/3)^{-3}=(3/2)^3=3^3/2^3 =27/8$

7. B: When solving an equation of the form $x^n =b$, take the nth root of both sides of the equation. If n is even, then it will need to be $=\pm$? $\sqrt[n]{b}$, meaning there are two solutions, one positive and one negative. If n is even and b is less than zero, then no real solution exists.

$x^2=16$

$\sqrt{(x^2)} = \pm \sqrt{16}$

$x = \pm 4$

8. C: When solving an equation of the form $x^n = b$, take the nth root of both sides of the equation. If n is even, then it will need to be $\pm\sqrt[n]{b}$, and if *n* is odd, it is only the $\sqrt[n]{b}$. If *n* is odd, then there is only one solution and the sign of the answer is the sign of b.

$x^3 = -27$

$\sqrt[3]{x^3} = \sqrt[3]{-27}$

$x = -3$

9. D: Because the exponent of 10 is -4, the decimal which is located behind the 7 will move 4 spaces to the left, and any of the empty spaces will fill with 0's. so $7 \times 10^{-4} = 0.0007$

10. D: 1.43×10^{-2} is the same as $1.43 \times 1/100$ or .0143. To write a number in scientific notation, the form is $a \times 10^n$, where $1 \le a < 10$. The decimal needs to move two spaces to the right so that it is immediately to the right of the 1. To move the decimal 2 places, we multiply by 100, but we also need to multiply by 10^{-2} to cancel. $.0143 = .0143 \times 100/100 = 1.43 \times 1/100 = 1.43 \times 10^{-2}$.