



# Mathematics Grade 8

## Sorrell Mathematics, 8 Unit\_4

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**WAKE COUNTY SCHOOLS**

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1. Which rational number is a solution to the inequality shown?

$$x \geq 7$$

- A.  $\sqrt{35}$
- B.  $2\sqrt{8}$
- C.  $\sqrt[3]{27}$
- D.  $5\sqrt{3}$
2. Four numbers are given.

$$\sqrt{43} \quad 6 \quad \pi \quad 2\sqrt{2}$$

Which is a list of the numbers from *least* to *greatest*?

- A.  $2\sqrt{2}$ ,  $\pi$ ,  $6$ ,  $\sqrt{43}$
- B.  $\pi$ ,  $2\sqrt{2}$ ,  $6$ ,  $\sqrt{43}$
- C.  $2\sqrt{2}$ ,  $\pi$ ,  $\sqrt{43}$ ,  $6$
- D.  $\pi$ ,  $6$ ,  $2\sqrt{2}$ ,  $\sqrt{43}$

3. Four numbers are given.

$$\sqrt{12} \quad 1.2743 \quad \frac{3\pi}{\pi} \quad \sqrt{324}$$

Which number is irrational?

- A.  $\sqrt{12}$
- B.  $1.2743$
- C.  $\frac{3\pi}{\pi}$
- D.  $\sqrt{324}$

4. Four numbers are given.

$$\pi \quad \sqrt{2} \quad -7 \quad \sqrt{6}$$

Which number is rational?

- A.  $\pi$
- B.  $\sqrt{2}$
- C.  $-7$
- D.  $\sqrt{6}$

5. Four numbers are given.

$$8.9745 \quad \sqrt{18} \quad 4.\overline{57} \quad \sqrt{576}$$

Which number is irrational?

- A. 8.9745
- B.  $\sqrt{18}$
- C.  $4.\overline{57}$
- D.  $\sqrt{576}$
6. Four numbers are given.

$$13.\overline{82} \quad \sqrt{19} \quad \frac{\pi}{3.14} \quad \sqrt{20}$$

Which number is rational?

- A.  $13.\overline{82}$
- B.  $\sqrt{19}$
- C.  $\frac{\pi}{3.14}$
- D.  $\sqrt{20}$

7. Which of the numbers in the set is an integer?

$$\sqrt{3}, \sqrt{6}, \sqrt{15}, \sqrt{36}$$

- A.  $\sqrt{3}$
- B.  $\sqrt{6}$
- C.  $\sqrt{15}$
- D.  $\sqrt{36}$
8. Which is a proper classification of the number shown?

$$-3.89$$

- A. irrational and decimal
- B. irrational and negative
- C. rational and whole
- D. rational and negative
9. Which is a proper classification of the number, 1.02597...?
- A. rational and integer
- B. rational and natural
- C. irrational and integer
- D. irrational and real

10. The hockey championship tournament is in 2 weeks. Mark wants to spend 8 hours this week practicing hockey to prepare for the event. The table represents the amount of time Mark spends each day practicing.

Day of the Week	Time Spent Practicing
Monday	$\frac{4}{3}$ of an hour
Tuesday and Wednesday	1 hour 15 minutes
Thursday	0.75 hour
Friday and Saturday	$\frac{5}{6}$ of an hour
Sunday	$\frac{3}{4}$ of an hour

How much time will Mark be short of reaching his goal of 8 hours?

- A.  $\frac{1}{2}$  hour
- B. 1 hour
- C.  $1\frac{1}{2}$  hours
- D. 2 hours

11. George and Adam painted the game room together. George painted  $\frac{1}{5}$  of the room, and Adam painted 0.35 of the room. What was the total percentage of the room painted by Adam and George?

- A. 50%
- B. 55%
- C. 60%
- D. 65%

12. Which real number is irrational?

- A.  $1.9\sqrt{16}$
- B.  $3\sqrt{5}$
- C.  $\frac{37}{40}$
- D.  $\frac{1}{8}$

13. If 150% of  $x$  is equal to 90% of  $y$ , and if  $y \neq 0$ , what is the value of  $\frac{x}{y}$  ?

A.  $\frac{3}{5}$

B.  $\frac{3}{4}$

C.  $\frac{4}{3}$

D.  $\frac{5}{3}$

14. Which number is irrational?

A.  $\frac{1}{2}$

B.  $\sqrt{169}$

C.  $3.\bar{3}$

D.  $\sqrt{5}$

15. Which choice shows the numbers in order from *least* to *greatest* ?

A.  $6.1, \frac{45}{7}, \sqrt{37}$

B.  $\sqrt{37}, 6.1, \frac{45}{7}$

C.  $\frac{45}{7}, \sqrt{37}, 6.1$

D.  $\sqrt{37}, \frac{45}{7}, 6.1$

16. Which number is an irrational number?

A.  $\sqrt{81}$

B.  $\frac{5}{7}$

C.  $\sqrt{30}$

D. 0.57

17. List these numbers in order from *greatest* to *least*.



A.  $2\sqrt{5}$ ,  $4\frac{2}{3}$ , 4.67,  $\frac{21}{5}$

B.  $\frac{21}{5}$ , 4.67,  $4\frac{2}{3}$ ,  $2\sqrt{5}$

C.  $4\frac{2}{3}$ , 4.67,  $\frac{21}{5}$ ,  $2\sqrt{5}$

D. 4.67,  $4\frac{2}{3}$ ,  $2\sqrt{5}$ ,  $\frac{21}{5}$

18. Which number is irrational?

A.  $\frac{7}{6}$

B.  $\sqrt{289}$

C.  $3.\bar{3}$

D.  $\sqrt{2}$

19. To which set of numbers does -52 belong?

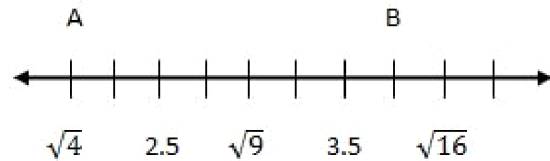
A. prime

B. integers only

C. irrational only

D. both integers and rational

20. Point *A* and point *B* are shown on the number line.



What is the distance between point *A* and point *B*?

A. .25 units

B. 1.75 units

C. 5.5 units

D. 7.75 units

21. Which is the largest value?

A.  $2\sqrt{12}$

B.  $3\sqrt{10}$

C.  $4\sqrt{8}$

D.  $5\sqrt{5}$

22. If 80% of 120 students passed the test, and  $\frac{1}{4}$  of these students received an 'A' on the test, how many students received an 'A'?

A. 20 students  
B. 22 students  
C. 24 students  
D. 26 students

23. A contractor is building a bridge over a lake. She measured the distance across the lake as:

$$\sqrt{5468} \text{ ft.}$$

*Approximately* what is the distance across the lake?

A. 53 feet  
B. 65 feet  
C. 74 feet  
D. 81 feet

24. The 8th grade is selling tickets to the 8th grade formal. The cost per ticket is \$15. The decorations and food cost \$600, and each ticket cost \$0.50 to print. How many tickets need to be sold in order for the 8th grade to make a profit?

A. 42  
B. 50  
C. 63  
D. 74

25. Which choice is part of the solution set for the inequality,  $x < 6$ ?

A.  $3\sqrt{25}$   
B.  $2\sqrt{20}$   
C.  $\sqrt[3]{64}$   
D.  $\sqrt{36}$

26. Four numbers are given.

$$2\sqrt{3} \quad 4 \quad 2\pi \quad 1.5$$

Which is a list of the numbers from *least* to *greatest*?

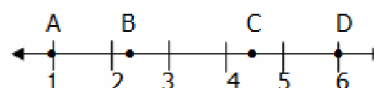
- A. 1.5,  $2\sqrt{3}$ ,  $2\pi$ , 4  
 B.  $2\sqrt{3}$ , 1.5, 4,  $2\pi$   
 C. 1.5, 4,  $2\sqrt{3}$ ,  $2\pi$   
 D. 1.5,  $2\sqrt{3}$ , 4,  $2\pi$
27. Which choice correctly places the set of rational numbers from *least* to *greatest*?

- A.  $\left\{\sqrt{2}, 45\%, 0.32, \frac{1}{4}\right\}$   
 B.  $\left\{\frac{1}{4}, 45\%, 0.32, \sqrt{2}\right\}$   
 C.  $\left\{\frac{1}{4}, 0.32, \sqrt{2}, 45\%\right\}$   
 D.  $\left\{\frac{1}{4}, 0.32, 45\%, \sqrt{2}\right\}$

28. Which choice represents the greatest value?

- A.  $5\sqrt{2}$   
 B.  $3\sqrt{3}$   
 C.  $2\sqrt{5}$   
 D.  $\sqrt{6}$

29. Four points are plotted on the numberline.



Which number represents  $\sqrt{5}$ ?

- A. A  
 B. B  
 C. C  
 D. D
30. Which number below is more than 15 but less than 16?

- A.  $\sqrt{225}$   
 B.  $\sqrt{247}$   
 C.  $\sqrt{256}$   
 D.  $\sqrt{265}$



31. Which lists three real numbers in order from *least* to *greatest*?

A.  $\frac{8}{10}, \frac{3}{5}, \sqrt{\frac{4}{25}}$

B.  $\frac{8}{10}, \sqrt{\frac{4}{25}}, \frac{3}{5}$

C.  $\sqrt{\frac{4}{25}}, \frac{8}{10}, \frac{3}{5}$

D.  $\sqrt{\frac{4}{25}}, \frac{3}{5}, \frac{8}{10}$

32.  $P, Q, R,$  and  $S$  are points on the number line.



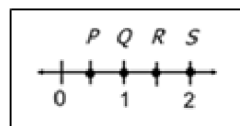
Which point represents  $\sqrt{1}$ ?

- A.  $P$
- B.  $Q$
- C.  $R$
- D.  $S$
33. Between which 2 integers is the  $\sqrt{132}$  located?
- A. 10 and 11
- B. 11 and 12
- C. 12 and 13
- D. 13 and 14

34. Between which two numbers does  $\sqrt{150}$  lie?

- A. 10 and 11
- B. 11 and 12
- C. 12 and 13
- D. 13 and 14

35.  $P, Q, R,$  and  $S$  are points on the number line.



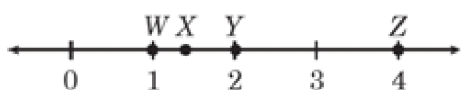
Which point represents  $\sqrt{2}$ ?

- A.  $P$
- B.  $Q$
- C.  $R$
- D.  $S$
36. Between which two numbers does  $\sqrt{77}$  lie?
- A. 6 and 7
- B. 7 and 8
- C. 8 and 9
- D. 9 and 10

37. What is the *approximate* value of  $\sqrt{357}$ ?

- A. 18.9
- B. 23.8
- C. 54.2
- D. 178.5

38. What letter on the number line represents  $\sqrt{4}$ ?

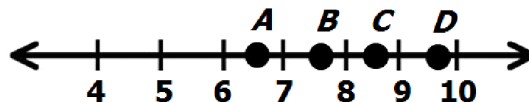


- A.  $W$
- B.  $X$
- C.  $Y$
- D.  $Z$

39. Which number is more than 27 and less than 28?

- A.  $\sqrt{27}$
- B.  $5^2$
- C.  $\frac{82}{3}$
- D.  $\sqrt{602}$

40. Four points are plotted on the number line.



Which point represents the  $\sqrt{76}$ ?

- A. point  $A$
- B. point  $B$
- C. point  $C$
- D. point  $D$

41. What is the correct order of the numbers, from *greatest* to *least*?



- A.  $\frac{5}{4}$ ,  $\sqrt{3}$ , 1.8,  $\sqrt[3]{14}$
- B. 1.8,  $\frac{5}{4}$ ,  $\sqrt[3]{14}$ ,  $\sqrt{3}$
- C. 1.8,  $\sqrt[3]{14}$ ,  $\frac{5}{4}$ ,  $\sqrt{3}$
- D.  $\sqrt[3]{14}$ , 1.8,  $\sqrt{3}$ ,  $\frac{5}{4}$

42. Which number has the *least* value?

A. 2.5

B.  $\sqrt{6}$

C.  $\frac{7}{3}$

D.  $\frac{9}{4}$

43. A contractor determined that the distance across a field is  $\sqrt{3,225}$  feet.

*Approximately*, what is this distance?

A. 57 ft

B. 325 ft

C. 625 ft

D. 1,612 ft

#	Answer	Objective
1.	D	Obj : 8.NS.1. Know that numbers that are not rational...
2.	A	Obj : 8.NS.1. Know that numbers that are not rational...
3.	A	Obj : 8.NS.1. Know that numbers that are not rational...
4.	C	Obj : 8.NS.1. Know that numbers that are not rational...
5.	B	Obj : 8.NS.1. Know that numbers that are not rational...
6.	A	Obj : 8.NS.1. Know that numbers that are not rational...
7.	D	Obj : 8.NS.1. Know that numbers that are not rational...
8.	D	Obj : 8.NS.1. Know that numbers that are not rational...
9.	D	Obj : 8.NS.1. Know that numbers that are not rational...
10.	B	Obj : 8.NS.1. Know that numbers that are not rational...
11.	B	Obj : 8.NS.1. Know that numbers that are not rational...
12.	B	Obj : 8.NS.1. Know that numbers that are not rational...
13.	A	Obj : 8.NS.1. Know that numbers that are not rational...
14.	D	Obj : 8.NS.1. Know that numbers that are not rational...
15.	B	Obj : 8.NS.1. Know that numbers that are not rational...
16.	C	Obj : 8.NS.1. Know that numbers that are not rational...
17.	D	Obj : 8.NS.1. Know that numbers that are not rational...
18.	D	Obj : 8.NS.1. Know that numbers that are not rational...
19.	D	Obj : 8.NS.1. Know that numbers that are not rational...
20.	B	Obj : 8.NS.1. Know that numbers that are not rational...
21.	C	Obj : 8.NS.1. Know that numbers that are not rational...

#	Answer	Objective
22.	C	Obj : 8.NS.1. Know that numbers that are not rational...
23.	C	Obj : 8.NS.1. Know that numbers that are not rational...
24.	A	Obj : 8.NS.1. Know that numbers that are not rational...
25.	C	Obj : 8.NS.2. Use rational approximations of irration...
26.	D	Obj : 8.NS.2. Use rational approximations of irration...
27.	D	Obj : 8.NS.2. Use rational approximations of irration...
28.	A	Obj : 8.NS.2. Use rational approximations of irration...
29.	B	Obj : 8.NS.2. Use rational approximations of irration...
30.	B	Obj : 8.NS.2. Use rational approximations of irration...
31.	D	Obj : 8.NS.2. Use rational approximations of irration...
32.	B	Obj : 8.NS.2. Use rational approximations of irration...
33.	B	Obj : 8.NS.2. Use rational approximations of irration...
34.	C	Obj : 8.NS.2. Use rational approximations of irration...
35.	B	Obj : 8.NS.2. Use rational approximations of irration...
36.	C	Obj : 8.NS.2. Use rational approximations of irration...
37.	A	Obj : 8.NS.2. Use rational approximations of irration...
38.	C	Obj : 8.NS.2. Use rational approximations of irration...
39.	C	Obj : 8.NS.2. Use rational approximations of irration...
40.	C	Obj : 8.NS.2. Use rational approximations of irration...
41.	D	Obj : 8.NS.2. Use rational approximations of irration...
42.	C	Obj : 8.NS.2. Use rational approximations of irration...
43.	A	Obj : 8.NS.2. Use rational approximations of irration...

Objectives Measured:	Items	Questions measuring this objective
Obj : 8.NS.1. Know that numbers that are not rational...	24	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24
Obj : 8.NS.2. Use rational approximations of irration...	19	25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43

#	Key	Item ID
1.	D	MC 38153
2.	A	MC 40110
3.	A	MC 40111
4.	C	MC 40112
5.	B	MC 40163
6.	A	MC 40164
7.	D	MC 40090
8.	D	MC 43730
9.	D	MC 43690
10.	B	MC 38176
11.	B	MC 38181
12.	B	MC 44702
13.	A	MC 44726
14.	D	MC 44808
15.	B	MC 44811
16.	C	MC 47863
17.	D	MC 47957
18.	D	MC 47963
19.	D	MC 49808
20.	B	MC 44296
21.	C	MC 44323

#	Key	Item ID
22.	C	MC 44730
23.	C	MC 44809
24.	A	MC 44814
25.	C	MC 38224
26.	D	MC 40162
27.	D	MC 38187
28.	A	MC 43744
29.	B	MC 44807
30.	B	MC 44812
31.	D	MC 47865
32.	B	MC 49483
33.	B	MC 123030
34.	C	MC 47862
35.	B	MC 47864
36.	C	MC 47866
37.	A	MC 47959
38.	C	MC 47960
39.	C	MC 47962
40.	C	MC 123031
41.	D	MC 44704
42.	C	MC 44810
43.	A	MC 47861