

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Determine which of the numbers are **a.** integers, **b.** rational numbers, **c.** irrational numbers, **d.** real numbers. List all that apply.

$$-\frac{15}{7}, 6, -4, \pi, 9.\overline{33}, 8.767767776\dots, \frac{\sqrt{3}}{9}, \sqrt{6}$$

2. Determine which of the numbers are **a.** integers, **b.** rational numbers, **c.** irrational numbers, **d.** real numbers. List all that apply.

$$-\frac{13}{7}, 6, -3, \pi, 2.\overline{55}, 6.282282228\dots, \frac{\sqrt{3}}{6}, \sqrt{3}$$

3. Determine which of the numbers are **a.** integers, **b.** rational numbers, **c.** irrational numbers, **d.** real numbers. List all that apply.

$$-\frac{3}{2}, 1, -7, \pi, 3.\overline{77}, 3.393393339\dots, \frac{\sqrt{6}}{5}, \sqrt{7}$$

4. Simplify:

$$-1 + (-12)$$

5. Simplify:

$$-7 + (-14)$$

6. Simplify:

$$\frac{3}{4} + \frac{6}{13}$$

7. Simplify:

$$\frac{3}{6} + \frac{4}{13}$$

8. Simplify:

$$\frac{1}{8} + \frac{6}{11}$$

9. Simplify:

$$-\frac{2}{23} + \frac{1}{2}$$

10. Simplify:

$$-\frac{2}{25} + \frac{1}{8}$$

11. Simplify:

$$\frac{3}{4} - \frac{4}{9}$$

12. Simplify:

$$\frac{5}{6} - \frac{2}{5}$$

13. Simplify:

$$\frac{5}{4} + \left(-\frac{4}{25}\right)$$

14. Simplify:

$$\frac{5}{2} + \left(-\frac{4}{23}\right)$$

15. Simplify:

$$-\frac{3}{4} + \left(-\frac{2}{21}\right)$$

16. Simplify:

$$-\frac{1}{17} + \frac{3}{2}$$

17. Simplify:

$$-\frac{1}{8} + \frac{6}{21} + \left(-\frac{3}{12}\right)$$

18. Simplify:

$$-41 + 37.21$$

19. Simplify:

$$-3.3 + (-9.77)$$

20. Simplify:

$$-95.93 + 24.24 + (-43.9)$$

21. Translate the following into a variable expression.  
one minus a number

22. Translate the following into a variable expression.  
a number divided by twenty

23. Simplify and round to three decimal places:

$$-24.528 \div (-5.6)$$

24. Simplify the following, giving your answer to the nearest hundredth.

$$-26.03 \div 9.77$$

25. Simplify.

$$c = \sqrt{6^2 + 8^2}$$

26. Simplify.

$$x = \frac{-(-7) + \sqrt{(-7)^2 - 4(6)(2)}}{2(6)}$$

27. Simplify.

$$d = \{|1.94 - 4.46| + |2.36 - 4.46| + |6.41 - 4.46|\} \div 3$$

28. Simplify:

$$-\frac{3}{4} + \left(-\frac{4}{17}\right)$$

29. Simplify:

$$-\frac{1}{19} + \frac{5}{10}$$

30. Simplify:

$$-\frac{5}{8} + \frac{4}{17} + \left(-\frac{3}{14}\right)$$

31. Simplify:

$$-48 + 31.23$$

32. Simplify:

$$-3.2 + (-3.27)$$

33. Simplify:

$$-99.48 + 29 + (-45.32)$$

34. Translate the following into a variable expression.  
ten minus a number

35. Translate the following into a variable expression.  
a number divided by fifteen

36. Simplify and round to three decimal places:

$$-24.486 \div (-5.3)$$

37. Simplify the following, giving your answer to the nearest hundredth.

$$-26.22 \div 9.87$$

38. Simplify.

$$c = \sqrt{4^2 + 3^2}$$

39. Simplify.

$$x = \frac{-(-7) + \sqrt{(-7)^2 - 4(6)(2)}}{2(6)}$$

**Answer Key**

1. **a.** integers: 6, -4  
**b.** rational numbers:  $-\frac{15}{7}$ , 6, -4,  $9.\overline{33}$   
**c.** irrational numbers:  $\pi, 8.767767776\dots, \frac{\sqrt{3}}{9}, \sqrt{6}$   
**d.** real numbers: all
2. **a.** integers: 6, -3  
**b.** rational numbers:  $-\frac{13}{7}$ , 6, -3,  $2.\overline{55}$   
**c.** irrational numbers:  $\pi, 6.282282228\dots, \frac{\sqrt{3}}{6}, \sqrt{3}$   
**d.** real numbers: all
3. **a.** integers: 1, -7  
**b.** rational numbers:  $-\frac{3}{2}$ , 1, -7,  $3.\overline{77}$   
**c.** irrational numbers:  $\pi, 3.393393339\dots, \frac{\sqrt{6}}{5}, \sqrt{7}$   
**d.** real numbers: all
4. -13
5. -21
6.  $\frac{63}{52}$
7.  $\frac{21}{26}$
8.  $\frac{59}{88}$
9.  $\frac{19}{46}$
10.  $\frac{9}{200}$
11.  $\frac{11}{36}$
12.  $\frac{13}{30}$
13.  $\frac{109}{100}$
14.  $\frac{107}{46}$
15.  $-\frac{71}{84}$

16.  $\frac{49}{34}$
17.  $-\frac{5}{56}$
18.  $-3.79$
19.  $-13.07$
20.  $-115.59$
21.  $1 - p$
22.  $\frac{z}{20}$
23.  $4.380$
24.  $-2.66$
25.  $10$
26.  $\frac{2}{3}$
27.  $2.19$
28.  $-\frac{67}{68}$
29.  $\frac{17}{38}$
30.  $-\frac{575}{952}$
31.  $-16.77$
32.  $-6.47$
33.  $-115.8$
34.  $10 - z$
35.  $\frac{a}{15}$
36.  $4.620$
37.  $-2.66$
38.  $5$
39.  $\frac{2}{3}$