1.4 Operations with Signed Numbers

Solutions

Perform the indicated addition or subtraction.

1. $5 + 9$ **= 14**

2. $5 + (-9)$

3. $-5 + 9$ **= 4**

4. $-5 + (-9)$

5. $3 - 10 = 3 + -10$ **= –7**

6. $3 - (-10)$

7. $10 - (-3) = 10 + 3$ **= 13**

8. $-10 - (-3)$

Perform the indicated multiplication or division.

9. $4(7)$ **= 28**

10. $4(-7)$

11. $-4(7)$ **= –28**

12. $-4(-7)$

13. $40 \div (-8)$ **= –5**

14. $-40 \div (-8)$

Perform the indicated operation.

15. $7 + (-3)$ **= 4**

16. $-5 \bullet 8$

17. $-63 \div 3$ **= –21**

18. $7 - (-12)$

19. $-\frac{72}{8}$ **= –9**

20. $\frac{16}{-8}$

Answers: **1.** 14; **3.** 4; **5.** – 7; **7.** 13; **9.** 28; **11.** –28; **13.** –5; **15.** 4; **17.** –21; **19.** –9

Perform the indicated operation. Show work steps.

21. $-\frac{3}{4}\cdot\frac{6}{7}=-\frac{3}{\cancel{4}_{2}}\cdot\frac{\cancel{6}^{3}}{7}=\boxed{-\frac{9}{14}}$

22. $\frac{5}{6}\div\frac{9}{13}$

23. $-\frac{1}{4}-\frac{3}{8}=-\frac{1}{4}+-\frac{3}{8}=-\frac{1\cdot2}{4\cdot2}+-\frac{3}{8}$
$=-\frac{2}{8}+-\frac{3}{8}=\boxed{-\frac{5}{8}}$

24. $\frac{1}{4}+\left(-\frac{7}{8}\right)$

25. $(0.25)(-1.3)$ $\boxed{=-0.325}$

1.3
.25
65
26
.325

26. $-16.4-(-4.8)$

27. $-1.9\div(-0.25)$ $\boxed{=7.6}$

$.25\overline{)1.9} \Rightarrow 25\overline{)190.0}$

7.6
175
150
150
0

28. $-1.45+(-0.35)$

29. $\frac{-5.4}{0}$ $\boxed{\text{undefined}}$

30. $\frac{0}{-5.4}$

Evaluate each exponential expression.

31. $(-5)^2=(-5)(-5)$ $\boxed{=25}$

32. $(-4)^3$

33. $-5^2=-5\cdot5$ $\boxed{=-25}$

34. -3^4

35. $-\left(\frac{2}{3}\right)^4=-\frac{2}{3}\cdot\frac{2}{3}\cdot\frac{2}{3}\cdot\frac{2}{3}=\boxed{-\frac{16}{81}}$

36. $\left(-\frac{2}{3}\right)^4$

Answers: **21.** $-\frac{9}{14}$; **23.** $-\frac{5}{8}$; **25.** –0.325; **27.** 7.6; **29.** undefined; **31.** 25; **33.** –25; **35.** $-\frac{16}{81}$

Complete the following statements with one of

a) is positive
b) is negative
c) depends on the magnitude (absolute value) of the numbers

37. The sum of two negative numbers

b) is negative

38. The product of two negative numbers

_____

39. The difference of two positive numbers

c) depends on the magnitude (absolute value) of the numbers

40. The product of two numbers with opposite signs _____

41. A negative number raised to an even power **a)** is positive

42. A negative number raised to an odd power _____

Evaluate each expression, using the Order of Operations.

43. $-35 \div (-3+8) = (-35) \div (5) = -7$

44. $-30 \div 6(-5)$

45.
$$-3\sqrt{36} + (2 - 5 \cdot 4)$$
$$= -3(6) + (2 - 20)$$
$$= -18 + (-18)$$
$$= -36$$

46. $-4(3-5) - 5\sqrt{16}$

47.
$$\frac{|3-9| - |17-2|}{-2|4-10|} = \frac{|-6| - |15|}{-2|-6|}$$
$$= \frac{6-15}{-2 \cdot 6} = \frac{-9}{-12} = \frac{3}{4}$$

48. $\dfrac{1.79 - (2.3)^2}{|0.2 - 0.9|}$

Answers: **37**. b; **39**. c; **41**. a; **43**. –7; **45**. –36; **47**. $\frac{3}{4}$

Evaluate each expression for $x = 2$, $y = -3$, $z = -5$.

49. $3x^2 - 5x$

$= 3(2)^2 - 5(2)$

$= 3(4) - 10$

$= 12 - 10 =$ **2**

50. $-4x + 3y$

51. $\dfrac{6y-3}{x-z} = \dfrac{6(-3)-3}{2-(-5)} = \dfrac{-18-3}{2+5}$

$= \dfrac{-21}{7} =$ -3

52. $\dfrac{x+y}{y-x}$

53. $-y^2 - x^2 = -(-3)^2 - (2)^2$

$= -9 - 4 =$ -13

54. $-x^2 + 3z$

Answers: **49**. 2; **51**. –3; **53**. –13