

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. $-5 \cdot 8$
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. $-\frac{3}{4} \cdot \frac{6}{7} = -\frac{3}{\cancel{2}^2} \cdot \frac{\cancel{6}^3}{7} = -\frac{9}{14}$	22. $\frac{5}{6} \div \frac{9}{13}$
23. $-\frac{1}{4} - \frac{3}{8} = -\frac{1}{4} + -\frac{3}{8} = -\frac{1 \cdot 2}{4 \cdot 2} + -\frac{3}{8}$ $= -\frac{2}{8} + -\frac{3}{8} = -\frac{5}{8}$	24. $\frac{1}{4} + \left(-\frac{7}{8}\right)$
25. $(0.25)(-1.3) = -0.325$ $\begin{array}{r} 1.3 \\ .25 \\ \hline 65 \\ \underline{26} \\ .325 \end{array}$	26. $-16.4 - (-4.8)$
27. $-1.9 \div (-0.25) = 7.6$ $\begin{array}{r} 7.6 \\ .25 \overline{)1.9} \Rightarrow 25 \overline{)190.0} \\ \underline{175} \\ 150 \\ \underline{150} \\ 0 \end{array}$	28. $-1.45 + (-0.35)$
29. $\frac{-5.4}{0}$ undefined	30. $\frac{0}{-5.4}$
Evaluate each exponential expression.	
31. $(-5)^2 = (-5)(-5) = 25$	32. $(-4)^3$
33. $-5^2 = -5 \cdot 5 = -25$	34. -3^4
35. $-\left(\frac{2}{3}\right)^4 = -\frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3} = -\frac{16}{81}$	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	
<p>a) is positive b) is negative c) depends on the magnitude (absolute value) of the numbers</p>	
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. $\begin{aligned} & -3\sqrt{36} + (2 - 5 \cdot 4) \\ & = -3(6) + (2 - 20) \\ & = -18 + (-18) \\ & = -36 \end{aligned}$	46. $-4(3 - 5) - 5\sqrt{16}$
47. $\begin{aligned} & \frac{ 3 - 9 - 17 - 2 }{-2 4 - 10 } = \frac{ -6 - 15 }{-2 -6 } \\ & = \frac{6 - 15}{-2 \cdot 6} = \frac{-9}{-12} = \frac{3}{4} \end{aligned}$	48. $\frac{1.79 - (2.3)^2}{ 0.2 - 0.9 }$
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. $3x^2 - 5x = 3(2)^2 - 5(2)$
 $= 3(4) - 10$
 $= 12 - 10 = \boxed{2}$

50. $-4x + 3y$

51. $\frac{6y-3}{x-z} = \frac{6(-3)-3}{2-(-5)} = \frac{-18-3}{2+5}$
 $= \frac{-21}{7} = \boxed{-3}$

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

53. $-y^2 - x^2 = -(-3)^2 - (2)^2$
 $= -9 - 4 = \boxed{-13}$

54. $-x^2 + 3z$

Answers: 49. 2; 51. -3; 53. -13