**Ch 6-7 Test – you must show all work to receive full credit!** SCORE \_\_\_\_\_\_\_\_\_\_

**Write the correct answer in the blank at the right of each question.**

1. Write $\left(\frac{1}{6}\right)^{3}$ as a product of the same factor. Then find the value.
2. Write 9 × 9 × 9 × 9 × 9 × 9 using an exponent.

**Find the value of each expression.**

**3.** 5 + 4 × 5 – 7

**4.** 8 × ($3^{3}$ + 2) – 11

**5.** 30 × 4 – $2^{2}$ × 5

**6.** Tanya purchased 4 hammers for $11.79 each and 7 screwdrivers for $6.65 each. Write an expression for the total cost of the tools. Then find the total cost.

**Evaluate each expression if *a* = 3, *b* =** $\frac{2}{3}$**, and *c* = 6.**

**7.** 2*a* + 5

**8.** 2*c* + 3*a*

**9.** $c^{2}$+ 3*a* × *b*

**Write each phrase as an algebraic expression.**

**10.** one piece more than twice the number of pieces

**11.** one third of Danielle’s height

**12.** six meters less than four times the width

**13.** Helen divided her colored pencils evenly among herself and three friends. Write an expression to represent the number of pencils each person received.

**1.**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**7.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**9.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**10.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**11.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**12.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**13.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Determine whether the two expressions are equivalent. If so, tell what property is applied. If not, explain why.**

 **14.** (8 × 2) × 5 = 8 × (2 × 5)

 **15.** 13 + 0 = 13

 **16.** 12 – (5 – 3) = (12 – 5) – 3

 **17.** Niko worked out for 45 minutes, 22 minutes, and 25 minutes last week. Use the Commutative Property to find the total number of minutes he worked out.

**Use the Distributive Property for numbers 24-27 to rewrite each algebraic expression.**

 **18.** 5(*x* + 9)

 **19.** 11(12 + *r*)

 **20.** 7(*b* + 3.5)

 **21.** For membership to a sports club, it $16 per month and $172 to join.

 Write an equation to figure out how many months it will be before the

 total cost is $300.

**Simplify each expression.**

 **22.** 7*x* + 3*x* + 4*x*

 **23.** 5(2*x* + 4*y*)

 **24.** 6*x* + 2*y* + 9*x*

**Factor each expression.**

 **25.** 9*x* + 36*y*

 **26.** 12*x* + 18*y*

**14.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**15.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**16.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**17.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**18.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**20. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**21. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**22. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**23. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**24. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**25. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**26. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Solve the following equations:**

**27.** *p* − 16 = 24

**28.** $\frac{d}{75}$ = 25

**29.** 13 = *t* + 2.1

**30.** 18 = $\frac{2}{5}f$

**31.** 27 = $\frac{z}{0.3}$

**32.** 5*x* = 15

**33.** Seema runs 5 miles more per week than her sister Padma. If Seema runs 17 miles per week, write an equation that could be used to find the number of miles Padma runs each week.

**27. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**28. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**29. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**30. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**31. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**32. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**33. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**