Objective 1

Simplify. Write your answer in exponential from.

1. 5^1
2. 25^0
3. $2^8 \cdot 2^6$
4. $4^5 \cdot 4^{-7}$
5. $3^{-4} \cdot 3^{-11}$
6. $(-5)^2 \cdot (-5)^3$
7. $\frac{8^{10}}{8^7}$

8. $\frac{10^{-4}}{10^{-8}}$

9. $\frac{3^9}{3^{-5}}$

10. $\frac{2^{-11}}{2^6}$

11. $(7^4)^5$

12. $(12^{-4})^3$

13. $(a^{-3})^{-5}$

14. $\frac{5^{-8}}{5^{-8}}$

15. $x^3 \cdot y^3 \cdot x^2$

16. $(4^2)^2 \cdot \left(\frac{(6-2)^3}{4^{-7}}\right) + (10-5)^2 \cdot 5^{11}$

Objective 2

Write the numbers in Standard Notation:

17. 5.36×10^8

18. 6×10^{-4}

**Write the numbers in Scientific Notation:**

19. 0.00008525

20. 325,900,000,000

21. A very small dust particle has a diameter of about 0.004 inches. Write this number in scientific notation.
22. 15 people won the lottery and each one received $900,000. What was the total jackpot? Write this number in scientific notation.
23. The planet Jupiter has a diameter of $8 \times 10^8 \ miles$. The Earth's moon has a diameter of $2 \times 10^4 \ miles$. Estimate how many times greater is Jupiter than Earth in scientific notation.
24. The length of your classroom is about $3.5 \times 10^2 \ in$. If the hallway is 10 times as long as the classroom, what is the length of the hallway expressed in scientific notation?

Objective 3

25. What is the sum of $(5.04 \times 10^6) + (3.6 \times 10^7)$ in scientific notation?
26. What is the difference of $(6.4 \times 10^7) - (1.22 \times 10^6)$ in scientific notation?
27. What is the product of $(5.2 \times 10^6)(1.1 \times 10^9)$ in scientific notation?
28. What is the quotient of $\frac{8 \times 10^{-7}}{2 \times 10^4}$ in scientific notation?
29. The diameter of a hydrogen atom is about $1.10 \times 10^{-14} cm$. The diameter of a proton is about $7.7 \times 10^{-16} cm$. Which one is larger and by how much?
30. In 2011, the population of India was 1.342×10^9. The population of China was 1.194×10^9. What is the total combined population?
31. The speed of light travels at 1.86×10^5 miles per second. It takes 5×10^2 seconds for sunlight to reach Earth. What is the Earth's distance from the sun in scientific notation?
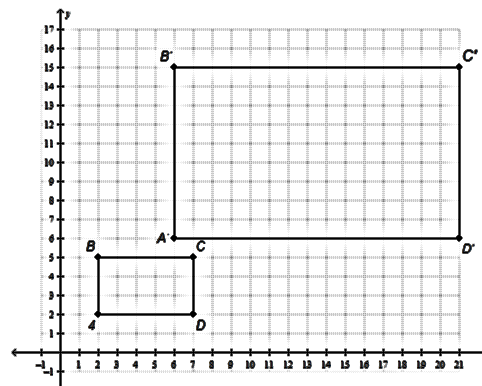
Blast From The Past

32. Describe and give the value of $-\sqrt{81}$.
33. Solve for x: $x^2 = \frac{64}{100}$
34. Solve for x: $x^3 = \frac{8}{27}$
35. Find the length of x. Round your answer to the nearest hundredth.
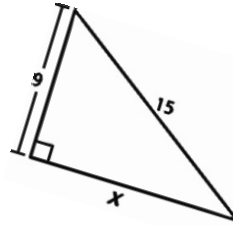
36. What is the length of the hypotenuse? Round your answer to the nearest hundredth.
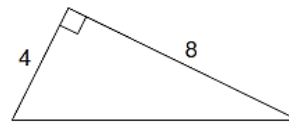
37. Are the two figures similar or congruent? Which transformation justifies their relationship?

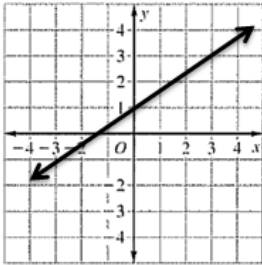**38.** Identify the transformation below. Justify your answer.

39. Determine if this set of ordered pairs is a function and justify your answer.
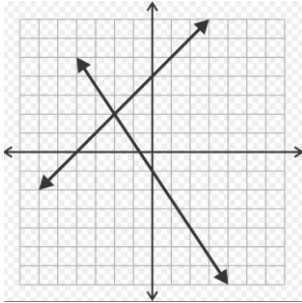
(1,4) , (-3,6) , (-5,6) , (5,4) , (2,7)

40. Which function is linear?

Function 1			Function 2	
x	y		x	y
−4	−6		−4	−7
−2	−1		−2	−2
0	3		0	3
2	6		2	8
4	8		4	13
6	9		6	18

41. What is the equation of this line?

42. What is the solution of this system of equations?

Answers:
Objective 1

1. 5
2. 1
3. 2^{14}
4. $4^{-2} = \frac{1}{4^2}$
5. $3^{-15} = \frac{1}{3^{15}}$
6. $(-5)^5$
7. 8^3
8. 10^4
9. 3^{14}
10. $2^{-17} = \frac{1}{2^{17}}$
11. 7^{20}
12. $12^{-12} = \frac{1}{12^{12}}$
13. a^{15}
14. 1
15. $x^5 y^3$
16. $4^{14} + 5^{13}$

Objective 2

17. 536,000,000
18. 0.0006
19. 8.525×10^{-5}
20. 3.259×10^{11}
21. $4 \times 10^{-3} inches$
22. $\$1.35 \times 10^7$
23. $4 \times 10^4, (40,000) times greater$
24. $3.5 \times 10^3 inches$

Objective 3

25. 4.104×10^7
26. 6.278×10^7
27. 5.72×10^{15}
28. 4×10^{-11}
29. The hydrogen atom is larger. The difference is $1.023 \times 10^{-14} cm$
30. $2.536 \times 10^9 people$
31. $9.3 \times 10^7 miles$

Blast From the Past

32. -9
33. $\frac{8}{10}$
34. $\frac{2}{3}$
35. $x = 12$
36. ≈ 8.94
37. Similar, dilation
38. Rotation
39. Yes, each input has only one output.
40. Function 2, there is a constant rate of change.
41. $y = \frac{2}{3}x + 1$
42. $(-2,2)$

5/30/2014