

## Solutions to pg. 296

A: 4, 12, 22, 28, 32, 34, 36, 42, 44, 50 - 56 (e), 72

B: 1, 4, 5, 12, 20, 22, 24, 26, 28, 32, 36, 42, 44, 48 - 54 (e), 70

C: 6 - 32 (e), 36, 44, 48, 52, 54

Remember, you should be working on these problems.

Then check the answer here. If you got it right, good job. If you got it wrong, then please try to figure out your mistake. If you cannot figure out your mistake then you should be asking a peer or your teacher how to do it.

Times to ask how to do it include: in class, during homeroom, during your study hall if your teacher is not teaching, before or after school, or at the start of class when you are grading the assignment from the night before.

2. The Power of a Product Property is used when finding a power of a product by finding the power of each factor and multiplying.

16.  $\frac{15}{c^8}$

18.  $\frac{s}{9r^{11}}$

4. Simplify  $3^{6 \cdot 3}$ ;  $3^{18}$ ;  $3^9$

20.  $\frac{49q^9}{p^8}$

6. 1

22.  $\frac{1625z^{10}}{x^5}$

8.  $-\frac{1}{32}$

24. -216

10.  $-\frac{1}{5}$

26. 1

12.  $\frac{81}{64}$

28.  $\frac{1}{s^{15}}$

14. 1

30.  $-\frac{1}{343}$

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32.  $z^5$

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34.  $14a^2b$  microns

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36. The exponent of the quotient should be the difference of the exponents, not the quotient of the exponents;  $\frac{x^8}{x^4} = x^4$

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38.  $\frac{1}{256x^4}$

40.  $\frac{t^2}{9}$

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42.  $-125p^9$

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44.  $64r^{36}$

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46.  $5 \times 10^{-4}$  sec, or 0.0005 sec

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48.  $\frac{-8s^{21}}{t^{33}}$

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50.  $\frac{81x^5y^{30}}{125}$

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52.  $4.88 \times 10^7$ ; 48,800,000

54.  $5 \times 10^2$ ; 500

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56.  $2.6 \times 10^3$  sec; 2600 sec

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58. a.  $2^{30}$  kilobytes  
b. 16,384 megabytes  
c. Multiply each number in the table by 8; yes; The number 8 can be expressed as  $2^3$ , so multiply each number in the table by  $2^3$ . Because the values have a common base of 2, they can be simplified using the Product of Powers Property.
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60.  $(4rs)^2$

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62.  $(9x^2y^4)^2$  or  $(3xy^2)^4$

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64. a.  $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}$   
b.  $2^{-1}, 2^{-2}, 2^{-3}, 2^{-4}$

66. *Sample answer:*  $r = x^2, h = 81x^4$

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68. a.  $2^{13}$

b.  $2^{23}$

c. They become  $3^{13}$  and  $3^{23}$ .

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70. 5