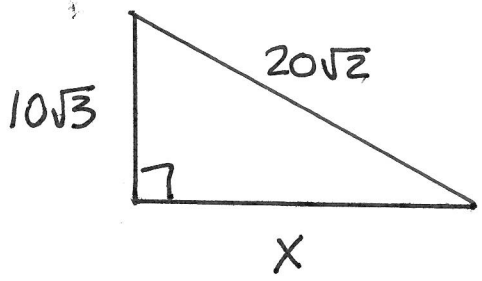
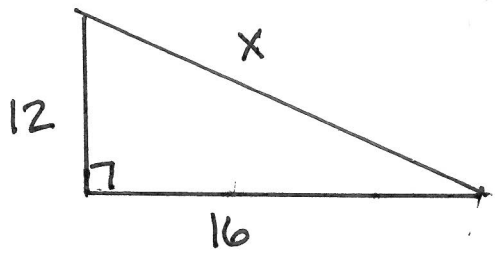
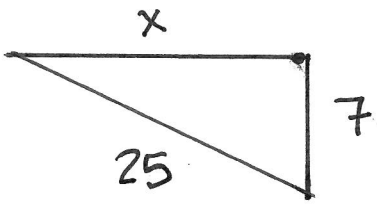
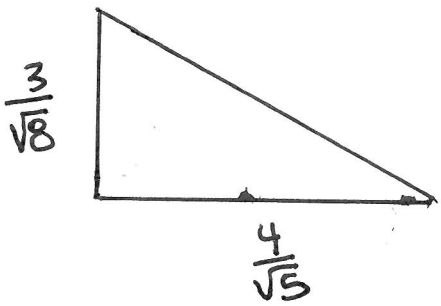
Ch. 19 - More Radicals

① 

② 

Save UNIT AFTER LECTURE ↓

③ 

④ 

SIMPLIFY

⑤ $\sqrt{124}$

⑥ $\sqrt{96}$

⑦ $7\sqrt{3} \cdot 4\sqrt{3} =$

TEST

1. F ⅀ D sheet (11-19)
2. Write your name on **F ⅀ D SHEET.**
3. Take Practice Test
4. Correct Practice test
5. Make sure you know how to do missed problems

Ch. 19 - More Radicals

Rationalizing Fractions

CANNOT LEAVE $\sqrt{\ }$ IN DENOMINATOR

① $\frac{7}{\sqrt{2}}$

② $\frac{3}{\sqrt{5}}$

③ $\frac{4}{\sqrt{8}}$

[b] $\frac{4}{\sqrt{8}}$

[c] $\frac{4}{\sqrt{8}}$

④ $\frac{3}{\sqrt{2}} + \frac{5}{\sqrt{3}}$

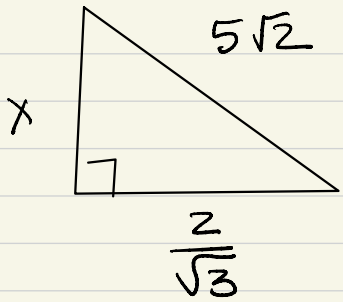
FRACTIONS ALWAYS NEED: _____

⑤ $\frac{12\sqrt{3}}{\sqrt{6}} =$

⑥ $\frac{3\sqrt{5}}{\sqrt{2}} + \frac{2\sqrt{5}}{\sqrt{2}}$

REMEMBER: $\sqrt{3} + \sqrt{2} \rightarrow$ _____

BUT: $\sqrt{3} \cdot \sqrt{2} \rightarrow$ _____


$5\sqrt{2}$
x
$\frac{2}{\sqrt{3}}$

LESSON PRACTICE

Simplify the radical expressions.

1. $\frac{9}{\sqrt{2}} =$

2. $\frac{10}{\sqrt{5}} =$

3. $\frac{6}{\sqrt{3}} =$

4. $\frac{8}{\sqrt{3}} =$

5. $\frac{15}{\sqrt{5}} =$

6. $\frac{9}{\sqrt{3}} =$

7. $\frac{3}{\sqrt{2}} + \frac{6}{\sqrt{5}} =$

8. $\frac{4}{\sqrt{5}} + \frac{2}{\sqrt{6}} =$

9. $\frac{4}{\sqrt{2}} + \frac{9}{\sqrt{5}} =$

10. $\frac{5}{\sqrt{10}} - \frac{3}{\sqrt{8}} =$

11. $\frac{5}{\sqrt{7}} + \frac{6}{\sqrt{2}} =$

12. $\frac{5\sqrt{2}}{\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{5}} =$

Fill in the blanks.

13. Radicals should not be left in the _____ of a fraction.

14. We can multiply the numerator and denominator by the same number because this is the same as multiplying by _____ .

15. When adding numbers with radicals, first eliminate the radicals in the _____ , and then find the _____ denominator.

LESSON PRACTICE

Simplify the radical expressions.

1. $\frac{11\sqrt{5}}{\sqrt{5}} =$

2. $\frac{18}{\sqrt{2}} =$

3. $\frac{12}{\sqrt{6}} =$

4. $\frac{7}{\sqrt{2}} =$

5. $\frac{6}{\sqrt{3}} =$

6. $\frac{9\sqrt{6}}{\sqrt{5}} =$

7. $\frac{4\sqrt{7}}{\sqrt{2}} + \frac{3\sqrt{7}}{\sqrt{2}} =$

8. $\frac{\sqrt{12}}{9} - \frac{\sqrt{18}}{4} =$

9. $\frac{5}{\sqrt{2}} + \frac{7}{\sqrt{8}} =$

10. $\frac{8\sqrt{3}}{\sqrt{2}} - \frac{5\sqrt{6}}{\sqrt{5}} =$

11. $\frac{3}{\sqrt{5}} + \frac{7}{\sqrt{2}} =$

12. $\frac{4\sqrt{11}}{\sqrt{3}} + \frac{2\sqrt{5}}{\sqrt{7}} =$

Fill in the blanks.

13. Fractions may be simplified by multiplying them by a number equal to _____ .

14. The denominator of a fraction should not contain a _____ sign.

15. Find the _____ _____ before adding two fractions.

Simplify the radical expressions as completely as possible.

1. $\frac{6}{\sqrt{7}} =$

2. $\frac{8}{\sqrt{2}} =$

3. $\frac{6\sqrt{2}}{\sqrt{3}} =$

4. $2\sqrt{3} + 6\sqrt{2} =$

5. $(4\sqrt{3})(7\sqrt{15}) =$

6. $\frac{\sqrt{36}}{\sqrt{6}} =$

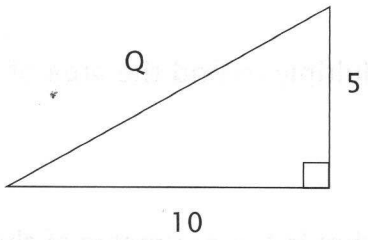
7. $\frac{10\sqrt{10}}{\sqrt{7}} - \frac{2\sqrt{6}}{\sqrt{11}} =$

8. $\frac{24\sqrt{13}}{\sqrt{3}} + \frac{3\sqrt{2}}{\sqrt{3}} =$

Follow the directions.

9. Estimate Q.

10. Write the equation using the Pythagorean theorem.



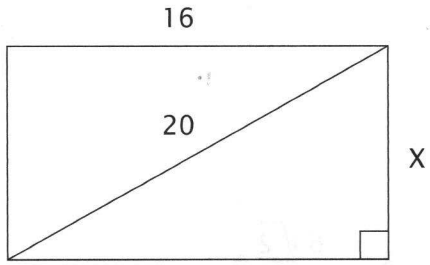
11. Solve the equation. Simplify as needed.

Follow the directions.

12. Estimate X.

13. Write the equation using the Pythagorean theorem.

14. Solve the equation. Simplify as needed.



15. Find the volume of a cone with a radius of 11" and a height of 14.3".

16. Construct a rhombus with sides each measuring five centimeters long and one pair of opposite interior angles each measuring 60°.

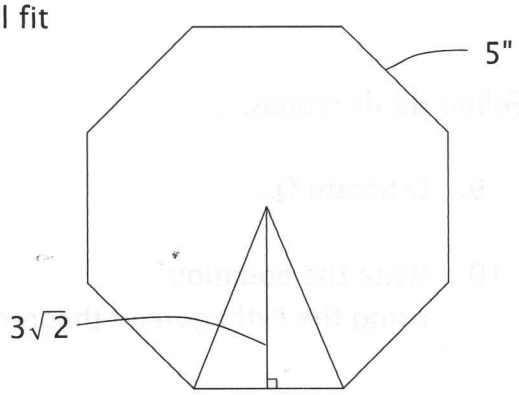
17. What are the measures of the other two opposite angles in #16?

Follow the steps below to find the area of the regular polygon.

18. Find the area of one triangle with a base of 5". How many triangles of the same size will fit in the octagon?

19. Multiply to find the area of the octagon.

20. What is the perimeter of the octagon?



The length of each side is 5".
The apothem (⊥ line from side to center) is $3\sqrt{2}$ ".

LESSON PRACTICE

Simplify each expression.

1. $25^2 =$

2. $2^3 =$

3. $(-9)^2 =$

4. $(7)^3 =$

5. $(-17)^2 =$

6. $-\sqrt{81} =$

7. $5^3 \cdot 5^6 =$

8. $6^4 \cdot 6^2 =$

9. $18^{13} \div 18^{9} =$

10. $4^{8} \cdot 4^{5} =$

11. $(4^{2}) =$

12. $C^{1}\ C^{2}\ C^{3} =$

13. $F^{3}\ F^{4}\ E^{5}\ F^{2} =$

14. $B^{6}\ C^{1}\ C^{3}\ B^{7} =$

15. $Y^{10} \cdot Y^{5} \div Y^{3} =$

16. $A^{8X} \div A^{3X} =$

Simplify each expression.

1. $14^2 =$

2. $\sqrt{121} =$

3. $(-9)^2 =$

4. $-\sqrt{49} =$

5. $3^3 \cdot 3^3 =$

6. $5^2 \cdot 5^6 =$

7. $6^5 \div 6^2 =$

8. $4^5 \cdot 4^2 =$

9. $A^5A^2B^4B^1 =$

10. $B^Y \cdot B^{2Y} =$

11. $A^5 \div A^1 =$

12. $X^5 \cdot X^2 \div X^7 =$

13. When you multiply two numbers with the same base, you _____ the exponents.

14. When you divide two numbers with the same base, you _____ the exponents.

For #15–16 Find three consecutive integers such that five times the third, minus two times the first, is the same as four times the second, minus forty.

15. Write the equation using unknowns.

16. Solve the equation to find the integers.

17. Twenty nickels and dimes have a value of $1.60. How many are there of each coin?

18. Write $6X + 3Y = 10$ in the slope-intercept form.

For #19–20 A nursery has a two-foot sapling and a four-foot sapling. The two-foot sapling will grow at a rate of three feet a year, but the four-foot sapling will grow at only one foot a year. In how many years will the saplings be the same height? How tall will they be then?

19. Write two equations using X for the number of years and Y for the height of the saplings.

20. Use substitution or elimination to solve for X and Y and answer the questions.

SYSTEMATIC REVIEW

Simplify each expression.

1. $-13^2 =$

2. $-\sqrt{144} =$

3. $(-15)^2 =$

4. $\sqrt{100} =$

5. $7^3 \cdot 7^4 \cdot 7 =$

6. $2^8 \cdot 2^3 \cdot 2^2 =$

7. $X^2 \cdot X^9 =$

8. $A^4A^5 B^2 =$

9. $8^5 \div 8^3 =$

10. $10^5 \div 10 =$

11. $X^{10} \div X^4 =$

12. $X^{4Y} \cdot X^{3Y} \div X^Y =$

13. When you _____ two numbers with the same base, you subtract the exponents.

14. When you _____ two numbers with the same base, you add the exponents.

For #15–16 Find three consecutive odd integers such that four times the second, plus three times the third, is the same as eight times the first, minus eleven.

15. Write the equation using unknowns.

16. Solve the equation to find the integers.

17. Seven quarters and dimes have a value of $1.60. How many are there of each coin?

For #18–20 A craftsman has orders for special Christmas ornaments. He already has 30 finished and can make 37 a week.

18. Write an equation with X as the number of weeks and Y for the total number of ornaments needed.

19. If he needs a total of 215 ornaments, how many weeks must he work?

20. With new orders, the craftsman must now make 326 ornaments. How many weeks will it take to finish?