Math 20 Unit #5 8.6 to 8.7; 10.1 to 10.6

To the Test – be sure to bring:

(1) your personally-prepared 8 ½ " by 11" study guide for this test
(2) your simple, non-graphing calculator
(3) your pencils
(4) your BluGold ID

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1. Solve for the value of n :

$$\frac{2n-5}{3}=\frac{11n+24}{8}$$

$$\frac{3n+5}{2}=\frac{5n-19}{6}$$

$$\frac{2n-3}{4}=\frac{7n+2}{6}$$

2. Solve for the value of p : $\frac{4}{p+7}-\frac{9}{p+9}=\frac{9}{p^2+16p+63}$

$$\frac{8}{p-3}-\frac{3}{p^2-8p+15}=\frac{3}{p-5}$$

$$\frac{2}{p+3}=\frac{8}{p+4}-\frac{4}{p^2+7p+12}$$

3. Develop the proportion you need to solve this problem. List it and then solve the problem.
The ratio of students who eat M&Ns to those who don't is 4:3. If 12 don't eat M&Ns, how many do?

4. Develop the proportion you need to solve this problem. List it and then solve the problem.
   An industrial cleaning solution calls for 11 parts water to 3 parts concentrated cleaner. If a worker uses 48 more quarts of water than concentrated cleaner to make a solution, how much concentrated cleaner did she use?

5. Develop the proportion you need to solve this problem. List it and then solve the problem.
   With a current flowing at 25 mph, a boat can travel 35 mi with the current in the same amount of time it can go 12 mi against the current. Find the speed of the boat in still water. [d = r * t]

A boat can travel 25 mi with the current in the same amount of time it can go 17 mi against the current. If the speed of the boat is 42 mph in still water, find the speed of the current.

6. Find the root, if possible. Express your answer as a simplified, improper fraction, if necessary.

$-\sqrt{25}$ $-\sqrt{49}$

7. Find the root, if possible. Express your answer as a simplified, improper fraction, if necessary.

$\sqrt[3]{-8}$ $\sqrt[3]{-1000}$ $-\sqrt[3]{-8000}$

8. Rewrite with a positive exponent and evaluate. Express your answer as a simplified, improper fraction, if necessary.

$64^{-\frac{2}{3}}$ $27^{-\frac{2}{3}}$ $16^{-\frac{3}{4}}$

9. Simplify completely. Assume all variables represent positive real numbers. The answer should contain only positive exponents.

$\left(\dfrac{x^{-\frac{5}{6}}}{y^{-\frac{4}{9}}}\right)^{-18}$ $\left(\dfrac{x^{-\frac{3}{5}}}{y^{\frac{2}{5}}}\right)^{-5}$

10. Perform the indicated operation and simplify. Assume all variables represent positive real numbers.

$\sqrt{\frac{64}{2}}$ $\sqrt{\frac{100}{5}}$ $\sqrt{75}$

11. Perform the indicated operation and simplify. Assume all variables represent positive real numbers.

$\sqrt{3a^6b^7} \bullet \sqrt{21ab^2}$ $\sqrt{2a^4b^5} \bullet \sqrt{10ab^2}$ $(\sqrt{x})^6 \bullet \sqrt{x^8}$

12. Simplify completely.

$\sqrt[3]{54}$ $\sqrt[3]{40}$ $\sqrt[3]{500}$

13. Perform the indicated operation and simplify. Assume y represents a positive real number.

$\sqrt[3]{y^2} \bullet \sqrt[3]{y^{14}}$ $\sqrt[5]{\frac{y^{48}}{y^{18}}}$

14. Perform the indicated operation and simplify.

$$2\sqrt{63}-\sqrt{28}+3\sqrt{700}$$

15. Perform the indicated operation and simplify.

$$4\sqrt{24t}+8\sqrt{6t}$$

$$2\sqrt{54w}+5\sqrt{6w}$$

16. Multiply and simplify. Assume all variables represent non-negative real numbers.

8 $5-4\sqrt{3b}$

$$\sqrt{a}+3\sqrt{4b}\quad\sqrt{a}-3\sqrt{4b}$$