PreCalc Review for Sections A.7 and A.9

Name_____ Period:_____ Date _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

1) A bank loaned out $53,000, part of it at the rate of 12% per year and the rest at a rate of 5% per year. If the interest received was $4890, how much was loaned at 12%? 1) _____

A) $21,000 B) $32,000 C) $20,000 D) $33,000

2) The manager of a candy shop sells chocolate covered peanuts for $10 per pound and chocolate covered cashews for $14 per pound. The manager wishes to mix 90 pounds of the cashews to get a cashew-peanut mixture that will sell for $11 per pound. How many pounds of peanuts should be used? 2) _____

A) 270 lb B) 180 lb C) 360 lb D) 135 lb

3) How many liters of 80% hydrochloric acid must be mixed with 40% hydrochloric acid to get 15 liters of 65% hydrochloric acid? Write your answer rounded to three decimals. 3) _____

A) 8 L B) 9.375 L C) 3.125 L D) 4.688 L

4) A boat heads upstream a distance of 30 miles on the Mississippi river, whose current is running at 5 miles per hour. If the trip back takes an hour less, what was the speed of the boat in still water? Give the answer rounded to two decimal places, if necessary. 4) _____

A) 18.03 mph B) 15 mph C) 16.58 mph D) 6 mph

5) Five friends drove at an average rate of 50 miles per hour to a weekend retreat. On the way home, they took the same route but averaged 70 miles per hour. What was the distance between home and the retreat if the round trip took 10 hours? 5) _____

A) 1750 mi B) $583\frac{1}{3}$ mi C) $5\frac{5}{6}$ mi D) $291\frac{2}{3}$ mi

6) Bob can overhaul a boat's diesel inboard engine in 15 hours. His apprentice takes 30 hours to do the same job. How long would it take them working together assuming no gain or loss in efficiency? 6) _____

A) 4 hr B) 6 hr C) 45 hr D) 10 hr

Simplify the expression. Assume that all variables are positive when they appear.

7) $\sqrt[3]{21} \cdot \sqrt[3]{49}$ 7) _____

A) $\sqrt[3]{1029}$ B) $7\sqrt[3]{3}$ C) $7\sqrt[3]{21}$ D) $\sqrt[6]{1029}$

8) $\sqrt{\frac{75x^2y}{49}}$ 8) _____

A) $\frac{5x\sqrt{3y}}{7}$ B) $\frac{5\sqrt{3x^2y}}{7}$ C) $25x\sqrt{3y}$ D) $x\sqrt{\frac{75y}{7}}$

9) $7\sqrt{5} + 6\sqrt{20}$ 9) _____

A) $-19\sqrt{5}$ B) $-5\sqrt{5}$ C) $13\sqrt{5}$ D) $19\sqrt{5}$

Rationalize the denominator of the expression. Assume that all variables are positive when they appear.

10) $\frac{4}{5-\sqrt{10}}$ 10) _____

A) $\frac{20-4\sqrt{10}}{15}$ B) $\frac{20+4\sqrt{10}}{15}$ C) $\frac{4}{5}-\frac{4}{\sqrt{10}}$ D) $\frac{20+4\sqrt{10}}{5}$

Find the real solutions of the equation.

11) $\sqrt[3]{2x+5}=-3$ 11) _____

A) $\{-\frac{27}{2}\}$ B) $\{-\frac{29}{2}\}$ C) $\{2\}$ D) $\{-16\}$

12) $\sqrt{22x-11}=x+5$ 12) _____

A) $\{4\}$ B) $\{6\}$ C) $\{-6\}$ D) $\{-5\}$

Simplify the expression. Express the answer so that only positive exponents occur. Assume that all variables are positive when they appear.

13) $(625x^{20})^{1/4}$ 13) _____

A) $5x^{20}$ B) $625x^5$ C) $5\sqrt[5]{x}$ D) $5x^5$

14) $\frac{(3x^{2/3})^5}{x^{3/4}}$ 14) _____

A) $3x^{31/12}$ B) $3x^{49/12}$ C) $243x^{31/12}$ D) $243x^{49/12}$

15) $(x^4y^5)^{7/3}$ 15) _____

A) $x^{28/3}y^{35/3}$ B) $x^{12/7}y^{15/7}$ C) $x^{35/3}y^{28/3}$ D) $x^{19/3}y^{22/3}$