Mathematics 130 **Name:** _____
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EXAM 2

Problem 1 The retail price of a sweater is $68.

(a) What was the wholesale price if the store markup is 70%?

(b) How much is the store making if the sweater is sold at 30% off?

(c) What is the largest discount the store can offer and still break even?

Problem 2

(a) Construct the addition table in base six.

(b) Construct the multiplication table in base six.

Problem 3 Calculate in base six:

(a)
$$\begin{array}{r} 245 \\ 352 \\ +\ 543 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 524 \\ \times\ 532 \\ \hline \end{array}$$

Problem 4 Convert the following:

(a) $543_{six} =$ _____ $_{ten}$

(b) $543_{ten} =$ _____ $_{six}$

Problem 5 If a number is divisible by 5 or 8, then it is **cute**. Determine for each sentence below if it is true, false, or undecidable.

T F U 23 is cute.

T F U 24 is cute.

T F U There is no cute number ≤ 25.

T F U 41 could be cute.

T F U There are odd cute numbers.

Problem 6 A bowl contains red and white balls in two sizes. There are 20% more red balls than white balls. One third of the red balls are small and 40% of the white balls are small.

(a) What is the ratio of red balls to white balls?

(b) What is the ratio of big red balls to small red balls?

(c) What is the ratio of big balls to small balls in the bowl?

Problem 7 John leaves Madison at 9:00 am on a trip to Minneapolis. He drives at 60 mph. Mary leaves Madison at 9:30 am and drives toward Minneapolis at 70 mph. How far are they from Madison when Mary catches up with John?

Problem 8 (a) Find a fraction equal to $0.1323232\ldots$

(b) The value of a fraction is $1/4$. If we add 5 to the numerator, its value becomes $1/2$. What is the original fraction?

Problem 9 Three years ago Jenny was three times as old as Mary. In two years she will be twice as old. How old are they now?

Problem 10 How much 10% solution must be added to how much 60% solution to get 6 gallons of 50% solution?