

Review Math 130 Midterm #1 Fall 2010

For the midterm, you should review your homework problems, journal problems and the activities done in class.

Good practice word problems can be found in 4A textbook p. 41 and 5A textbook p. 25 and p. 32.

The following problems have been collected from previous exams.

1. Compute $552 \div 24$ using the algorithm of your choice. Then write out the same computation in details using expanding forms.
2. Simplify $2^7 \times 5^9$. Justify your steps.
3. Compute the following using mental math. Justify your steps.

(a) 9×45

(b) $960 \div 30$

(c) 28×25

(d) $62 - 17$

(e) 48×5

4. In a perfect world, addition, subtraction, multiplication and division would have the same properties but they do not. Either state the name of the property or give a numerical example illustrating why the statement is false.

(a) $a \times b = b \times a$

(b) $a - b = b - a$

(c) $\frac{a}{(b+c)} = \frac{a}{b} + \frac{a}{c}$

(d) $(a + b) + c = a + (b + c)$

(e) $a + 0 = a$

(f) $a \times 1 = a$

5. A party favor distributor sells small Halloween favors in bags of 6, boxes of 6 bags (for a total of 36 bags in a box), and containers of 6 boxes (for a total of 6×36 bags in a container). Customers use the following method to place their order: $(2341)_6$ means 2 containers, 3 boxes, 4 bags, and one individual favor. Suppose Dick orders $(1234)_6$ and Jane orders $(3532)_6$. How many containers, boxes, bags and individual favors have they ordered together?
6. The $9 \times$ multiplication table is easy to learn because you just subtract the number that is to be multiplied by 9 from that number with a 0 on the right as shown below. Explain why this method is valid.

$$9 \times 1 = 10 - 1 = 9$$

$$9 \times 2 = 20 - 2 = 18$$

$$9 \times 3 = 30 - 3 = 27$$

$$9 \times 4 = 40 - 4 = 36$$

$$9 \times 5 = 50 - 5 = 45$$

$$9 \times 6 = 60 - 6 = 54$$

$$9 \times 7 = 70 - 7 = 63$$

$$9 \times 8 = 80 - 8 = 72$$

$$9 \times 9 = 90 - 9 = 81$$

7. Use the partial product algorithm to calculate 32×24 . Illustrate the meaning of this algorithm using a rectangular array diagram.