

MA 130 SECTION 5.2 MULTIPLICATION & DIVISION OF INTEGERS

HOMEWORK: 1 – 27 odd

- Use pictorial models to represent integers and integer multiplication and division.
- Write and solve application problems that illustrate integer multiplication and division.

1. How would you convince a child that $3 \times (-2) = -6$?

2. Demonstrate $3 \times (-2)$

A. Using a number line

B. Using counters

3. Multiplication of integers: Given nonzero whole numbers a and b

A. The product of two integers with the same sign is positive.

$$a(b) = ab$$

$$-a(-b) = + ab$$

b. The product of two integers with different signs is negative.

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

4. Integer Division

If a , y , and q are integers and $y \neq 0$, then $x \div y = q$ if and only if $x = y \cdot q$.

The quotient of two integers with the same sign is positive.

The quotient of two integers with different signs is negative.

5. Miscellaneous applications

A. Euclid was born around 360 B.C.

- i. If he lived 50 years, when did he die?
- ii. Write an integer equation for this problem.
- iii. What operation and category does this illustrate?

B. Write an application using temperature, a walker, or another model that suggests the following computation.

i. $3 \times (-5) = -15$

ii. $-3 \times 5 = -15$

iii. $-3 \times (-5) = 15$

C. Write two division problems that are equivalent to $-3 \times (-6) = 18$.

- i.
- ii.

D. Explain how to compute $-6 \div 3$ by partitioning a set of signed counters