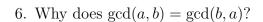
Last name
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$\begin{array}{c} {\rm LARSON-\!MATH~353-\!CLASSROOM~WORKSHEET~02} \\ {\rm Primes.} \end{array}$
1. What is \mathbb{Z} ?
Def. If $a, b \in \mathbb{Z}$ we say that a divides b , written $a \mid b$, if $ac = b$ for some $c \in \mathbb{Z}$. In this case, we say a is a <i>divisor</i> of b . We say that a does not divide b , written $a \nmid b$, if there is no $c \in \mathbb{Z}$ such that $ac = b$.
2. What are some examples?
3. What is a prime integer $n > 1$?
4. What is a <i>composite</i> integer?
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5. What is gcd(a, b) for integers a, b?



7. Why does
$$gcd(a, b) = gcd(\pm a, \pm b)$$
?

8. Why does
$$gcd(a, b) = gcd(a, b - a)$$
?

(**Lemma 1.1.10**) Suppose
$$a, b, n \in \mathbb{Z}$$
. Then $gcd(a, b) = gcd(a, b - an)$.

9. Why is Lemma 1.1.10 true?

(Proposition 1.1.11. Suppose that a and b are integers with $b \neq = 0$. Then there exists unique integers q and r such that $0 \leq r < |b|$ and a = bq + r.

10. Why is Proposition 1.1.11 true?