

- You may use a calculator and you may have a 3×5 note card of notes.
1. Evaluate $5^2 3^{-1} 2^4 5^{-1} 2^{-2}$.
 2. (a) Write down all the primes between 20 and 40.
(b) How many even primes are there?
(c) How many odd primes are there?
 3. What is 3456_7 in base 10?
 4. Find the base 16 representation of 47_{10} .
 5. In base 10, what digits can the last digit of a square integer be?
 6. Find the units digit of $7^{42} + 42^7$.
 7. What is the largest integer less than 100 that is congruent to 3 (mod 5).
 8. How many integers are there between 50 and 250 with are congruent to 1 (mod 7)?
 9. Find the greatest common factor of 36, 27 and 45.
 10. When n is divided by 5, the remainder is 1. What is the remainder when $3n$ is divided by 5?
 11. Let $A = \{n \in \mathbb{N} : 0 < n < 5\}$ and $B = \{n \in \mathbb{N} : 4 \leq n < 9\}$. Find $A \cap B$, $A \cup B$, $A - B$, $A \times B$.
 12. Which of the following sets are closed under multiplication
 - (a) $\{1, 2, 4, 8, 16, \dots\}$
 - (b) $\{0, -1, -2, -3, -4, \dots\}$
 13. In a class there are:
 - 8 students who play football and hockey
 - 7 students who do not play football or hockey
 - 13 students who play hockey
 - 19 students who play footballHow many students are there in the class?
 14. Write out the division, using the division algorithm.
 - (a) $45 \div 8$
 - (b) $1032 \div 7$
 15. Run the Euclidean Algorithm to find
 - (a) $\gcd(2322, 654)$
 - (b) $\gcd(13566, 35742)$