1.1-1.3 Revision

1. What is the smallest natural number that is also a prime?

2. Give a brief definition of a prime number.

3. What is the smallest natural number that is also a common multiple of 6 and 8?

4. What is the square of 80?

5. What is the inverse operation of squaring a number?

6. What is the sum of the three smallest odd natural numbers?

7. Are all square numbers also natural numbers?

8. List five prime numbers larger than 30 that start with 3.

9. Is
    - 624 divisible by 5?
    - 116771 divisible by 3?
    - 1501 divisible by 2?
    - 188 divisible by 4?
    - 123426 divisible by 9?
    - 2500 divisible by 10?
    - 2500 divisible by 100?
    - 2500 divisible by 10000?
    - 750 divisible by 5?

10. *Katie has 30 blue beads, 75 red beads, and 90 silver beads. If she want to make bracelets using all the beads, and each bracelet must be the same, how many bracelets can she make at most?

11. Determine whether the following numbers are prime.

- 1
- 0
- -11
- 8
- 57
- 2

12. Determine whether the following are true or false.

- 5.001 in two s.f. is equal to 5
- $20 + 5 \cdot 2 = 50$
- $5 \cdot 5^3 \div 5^4 = 1$
- $-5 > -6$
- $-12 > 4$
- $20 - 4 = -(4 - 20)$
- $9.2 = 9\frac{1}{5}$

1.4-1.7 Revision

1.
   - Find the root of 169.
   - Find the cube root of 216.
   - Estimate the root of 90 to the nearest integer.
   - Estimate the cube root of 225 to the nearest integer.
   - Calculate -1^2.
   - Calculate -1^3.
   - Calculate -1^{59}.

2. Fill in the blanks with either numbers or signs.
   - -4 + _____ = 9
   - _____ - 5 = - 6
   - 999 - 1999 = _____
   - 102 __ 2 = 51
   - 4 __ 3 = 64
   - $\sqrt[---]{81} = 3$
   - $3^{---} + 5^{---} = 149$ (any valid answers accepted)
   - $\frac{13}{4} + \frac{}{8} = 4$
   - $\frac{7}{} - \frac{1}{3} = \frac{4}{9}$

3. Calculate the following.
   - $305 \cdot 10^2$
   - $101 \cdot 10^{-3}$
   - $50 \cdot 10^{-133} \cdot 10^{135}$
   - $3 \div 10^{-2}$
   - $7 \div 10^4 \cdot 10^9$
   - $992 \div 10^0 \cdot 10^{-2}$

2.1-2.3 Revision

1. The photocopy machine costs as such: colored prints for RM 5 and black-and-white for RM 2. Find the total cost for the following:
   - 5 colored, 3 b/w
   - 3 colored, 4 b/w
   - In general, x colored, y b/w.

2. The cost of renting a house is RM500 fixed cost + RM200 per day. If the amount of days rented is x, write an algebraic equation for the total cost.

3. *This is similar to (2). Starting from day 5, the cost is RM100 per day. If the amount of days rented is x, where $x > 5$, write an equation for the total cost.

4. - *recall* Simplify $\sqrt[3]{1000x}$.
   - An isosceles triangle has two equal sides with lengths $(\frac{1}{2} \cdot 4x)^3$ and $1000y$. Find x in terms of y.

5. - *recall* What is the sum of probability of all the events in a sample space?
   - The probability that a biased coin flips *heads* is y. What is the probability that it flips *tails*?
   - *recall* Are the events of two coin flips *independent*? Are they *mutually exclusive*?
   - *What is the probability that it flips *tails* two times in a row?

6.
- * Two people - A and B - win a prize money of z dollars. Since A is the leader, he wants to have double that of the prize money of B who are just member. In terms of z, how much does A get?

- Three people - D, E, F - has the same exact situation, except now D wants to have double that of E's money, and E wants to have double that of F's money since he is the co-leader. How much does D get?

- Continuing above, find out how much D gets if $z = 110$.

- * What is the minimum value for z if D **does not** want to get cents as payment? (He want no decimals)

- **Describe the general method of solving this type of question, given x people, and each people having more money than the one after them.

7. What are like terms? Give some examples.

8. Simplify the following:
   - $4a \cdot 2b + 3b - 10ba$
   - $6y^2 \cdot y^{-2} + 6xy + 3xy$
   - $\frac{8x^2}{2x} - 3y + 4x - 5xy$
   - $\frac{4yx^2z^5}{2xy^2z^3} \cdot 4xy$

3.1 - 3.2 Revision

1. What is the difference between acute angle, right angle, and obtuse angle?

2. What is the sum of the angles in a triangle?

3. What is the difference between complementary angles and supplementary angles?

4. Explain the 'F', 'Z', and 'U' shape angles in parallel lines.

Chapter 2 Reintroduction

1. Calculate/Simplify the following.

   - $2x + 3x$
   - $j \cdot 2j \cdot z$
   - $2 \cdot (x + 4) - y \div 2z$
   - $5x \cdot 2y \div 2z$
   - $(xy) \cdot 2$
   - $(xy)^2 \cdot 6$

2. Calculate/Simplify the following.

   - $2^2 \cdot 2^2$
   - $x^3 \div 2x^2$
   - $x^2 \cdot 3x^2$
   - $x^3 \cdot x^4$
   - $2x^2 \cdot y^3 \div 6xy$
   - $x^x \div x^2 y \cdot y^y$

3. In company A, k is the length **and** height of their box, and w is the width of their box.

   - Write an algebraic formula for the volume of the box.

   - The company fixes w to be 10. If they want the volume to be 250, what should k be?

   - Find the volume if w is 7, and k is 11.

   - Which is larger, $w = 7, k = 5$, or $w = 5, k = 7$?

4. Work out the value of y in each of the following when $x = 3$.

   - $y = 2(x + 3)$
   - $y = 3x^3$
   - $y = 100$
   - $y = 100 - (3x)^2$

5. For each situation, write an algebraic equation.

   - a number x times five, then plus one.
     (answer: $5x + 1$*)*

   - The speed of light, c, squared.

   - The sum of -9 and k

   - The cost of a bike, if the cost of 10 bikes is *z + 10*

6. In a factory, normal workers get paid daily a salary of $8h + 15$, where h is the amount of hours worked.

   - Try to interpret what the salary of $8h + 15$ means. Try wording it in English.

   - If a worker works 8 hours, calculate their total salary.

   - An average worker works 9 hours a day. What is the average salary in the factory?

   - Let s be the average daily salary. The factory pays a total of $100s$ per day. What does this likely mean?

   - A factory *manager* also has a base salary of RM15, but different hourly rates. If a manager works 5 hours and earn 115 daily, calculate his hourly rate.

   - Continuing above, write an algebraic equation for a factory manager's daily salary.

7. Substitute. Find the value of the expression $n^2 + n + y$ when:

- n = 1, y = 1

- n = 3, y = 1

- n = 5, y = 41

- n = 10, y = 41

- *Look at all your answers. All these numbers are ..... numbers.