

Penang Sangam High School

P.O. Box 44, Rakiraki

Lesson Notes

Year 10

Mathematics

Strand: Numbers

Sub strand: Rules of Indices and Problem

Content Learning Outcome

- Apply Rules of indices using numerals and pronumerals
(Continuation from previous lessons)

Lesson Notes

Index Laws

1. $a^m \times a^n = a^{m+n}$

When multiplying numbers or variables having the same base, we add the index

2. $a^m \div a^n = a^{m-n}$

When dividing numbers or variables having the same base, we subtract the index

3. $(a^m)^n = a^{m \times n}$

When index form is raised to another power, the indices are multiplied.

4. $a^0 = 1$

Any number or variable raised to power of zero is equal to 1

5. $a^{-m} = \frac{1}{a^m}$

A negative index will give a fraction when simplified.

Activities

1. $a^2 \times a$

2.. $w^2 \times w^3$

3. $r^6 \div r^5$

4. $m^6 \div m^6$

5. Simplify $3x^0 + (3x) - (7x)^0$

6. $6x^0$ can be simplified to

- A. 1
- B. 0
- C. 6
- D. -6

7. Express as a single power of p :
 $p^2 \times p^5 \div p^3 =$

8. Simplify $(3x^4)^2 \div 2^0$

9. Evaluate 2^{-3}

10. Evaluate 4^{-2}