ON ALMOST PRIME IDEALS

Emine Serap KARACAN[1], Emel A.UGURLU[2], Unsal TEKIR[3]

[1,2,3]Marmara University, Istanbul, Turkey

MSC 2000: 13A15

Abstract

This work consists only of a survey [1]. In this talk, we study almost prime ideals. Throughout this study, R denotes commutative ring with identity. We give some theorems about characterization of almost prime ideals.

Theorem : For a proper ideal I of R the following are equivalent:

1. I is almost prime.
2. For $x \in R - I$, $(I : x) = I \cup (I^2 : x)$.
3. For $x \in R - I, (I : x) = I$ or $(I : x) = (I^2 : x)$.
4. For ideals A and B of R with $AB \subseteq I$, but $AB \nsubseteq I^2$, then $A \subseteq I$ or $B \subseteq I$.

Theorem : For a proper ideal I of R the following are equivalent:

1. I is $n-$almost prime.
2. For $x \in R - I$, $(I : x) = I \cup (I^n : x)$.
3. For $x \in R - I$, $(I : x) = I$ or $(I : x) = (I^n : x)$.
4. For ideals A and B of R with $AB \subseteq I$, but $AB \nsubseteq I^n$, then $A \subseteq I$ or $B \subseteq I$.

Theorem : Let R and S be any two commutative rings. Then an ideal of $R \times S$ is almost prime if and only if it has one of the following three forms,

1. $I \times S$, where I is an almost prime ideal of R.
2. $R \times J$, where J is an almost prime ideal of S.
3. $I \times J$, where I is an idempotent ideal of R and J is an idempotent ideal of S.

Keywords: Almost prime ideals, $n-$almost prime, idempotent ideal.

References

[1] Malik Bataineh, Generalization of Prime Ideals(Thesis), (2006)University of Iowa.

[2] D.D. Anderson ve E. Smith. Weakly Prime Ideals. Houston Journal of Mathematics, (2003) 29(4):831-840.

[1]emine.s.karacan@hotmail.com
[2]emel.aslankarayigit@marmara.edu.tr
[3]utekir@marmara.edu.tr