

## Solusi Ujian Kompetensi Dasar Perancangan Eksperimen

### Solusi nomor 1

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>Fhitung</i>	<i>F Tabel</i>
A	1	0.15	0.15	57.01	5.32
B	3	0.09	0.03	11.86	4.07
A x B	3	0.04	0.014	5.37	4.07
<i>Error</i>	8	0.02	0.0026		
Total	15	0.30			

#### Design Expert Output

Response: Force

##### ANOVA for Selected Factorial Model

Analysis of variance table [Partial sum of squares]

Source	Sum of Squares	DF	Mean Square	F Value	Prob > F	significant
Model	0.28	7	0.040	15.53	0.0005	significant
<i>A</i>	0.15	1	0.15	57.01	< 0.0001	
<i>B</i>	0.092	3	0.031	11.86	0.0026	
<i>AB</i>	0.042	3	0.014	5.37	0.0256	
Residual	0.021	8	2.600E-003			
<i>Lack of Fit</i>	0.000	0				
<i>Pure Error</i>	0.021	8	2.600E-003			
Cor Total	0.30	15				

The Model F-value of 15.53 implies the model is significant.

There is only a 0.05% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, AB are significant model terms.

The factors speed and feed rate, as well as the interaction is important.

**Solusi nomor 2**

Source	df	EMS	F Hitung
Prod_Run ( $\tau$ )	3	$\sigma^2 + 3\sigma_{\tau\beta}^2 + 18\sigma_{\tau}^2$	$\frac{\sigma^2 + 3\sigma_{\tau\beta}^2 + 18\sigma_{\tau}^2}{\sigma^2 + 3\sigma_{\tau\beta}^2}$
Batch ( $\beta$ )	5	$\sigma^2 + 3\sigma_{\tau\beta}^2 + 12\sigma_{\beta}^2$	$\frac{\sigma^2 + 3\sigma_{\tau\beta}^2 + 12\sigma_{\beta}^2}{\sigma^2 + 3\sigma_{\tau\beta}^2}$
Prod_Run x Batch ( $\tau \beta$ )	15	$\sigma^2 + 3\sigma_{\tau\beta}^2$	$\frac{\sigma^2 + 3\sigma_{\tau\beta}^2}{\sigma^2}$
<i>Error</i>	48	$\sigma^2$	

Lengkapi ( semua dalam angka ) Anova berikut dan ambil kesimpulan eksperimen di atas.

Source	df	EMS	F Hitung	F Tabel
Prod_Run	3	306.88	85.04	3.29
Batch	5	264.14	73.19	2.90
Prod_Run x Batch	15	3.61	13.95	1.79
<i>Error</i>	48	0.26		

Hasil interpolasi