

Homework 7

Earle Aguilar
804501476
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7.21

8.11

```
df <- read_excel("~/vmshare/stats 101b datasets/CH 8 (P11).xlsx")
```

a

If the design generators are $I = ACE$ and $I = BDE$ then $D = BE$ and $E = AC$.

```
design <- df[,1:5]
names(design) <- c("A","B","C","D", "E")

all((design$A*design$C) == design$E)
```

```
## [1] TRUE
```

```
all((design$B * design$E) == design$D)
```

```
## [1] TRUE
```

b

Complete Defining Relation:

$$I = ACE = BDE = ACBD$$

A	B	C	D	E
$A * ACE = CE$	$B * ACE = ABCE$	$C * ACE = AE$	$D * ACE = ACDE$	$E * ACE = AC$
$A * BDE = ABDE$	$B * BDE = DE$	$C * BDE = BCDE$	$D * BDE = BE$	$E * BDE = BD$
$A * ACBD = CBD$	$B * ACBD = ACD$	$C * ACBD = AB$	$D * ACBD = ACB$	$E * ACDB = ACDBE$

A	$A * ACE = CE$	$A * BDE = ABDE$	$A * ACBD = CBD$
B	$B * ACE = ABCE$	$B * BDE = DE$	$B * ACBD = ACD$
C	$C * ACE = AE$	$C * BDE = BCDE$	$C * ACBD = AB$
D	$D * ACE = ACDE$	$D * BDE = BE$	$D * ACBD = ACB$
E	$E * ACE = AC$	$E * BDE = BD$	$E * ACDB = ACDBE$

c

d

e

8.23

8.37

8.39

8.48