I certify that all solutions are entirely in my own words and that I have not looked at another student's solutions. I have given credit to all external sources I consulted.

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2.

a) $Pr(a=2)=0.1+0.1+0.1=0.3$

$Pr(a=4)=0.2+0.0+0.5=0.7$

$Pr(B=1)=0.1+0.2=0.3$

$Pr(B=3)=0.1+0.0=0.1$

$Pr(B=5)=0.1+0.5=0.6$

a	$Pr(A=a)$
2	0.3
4	0.7

b	$Pr(B=b)$
1	0.3
3	0.1
5	0.6

b) $E[A]=2\times0.3+4\times0.7=3.4$

$E[B]=1\times0.3+3\times0.1+5\times0.6=3.6$

$E[AB]=2\times0.1+6\times0.1+10\times0.1+4\times0.2+12\times0.0+20\times0.5=12.6$

c) $Pr(B=1\mid A=4)=\frac{P(B=1\cap A=4)}{P(A=4)}=\frac{0.2}{0.7}=\frac{2}{7}$

$Pr(B=3\mid A=4)=\frac{P(B=3\cap A=4)}{P(A=4)}=\frac{0.0}{0.7}=0$

$Pr(B=5\mid A=4)=\frac{P(B=5\cap A=4)}{P(A=4)}=\frac{0.5}{0.7}=\frac{5}{7}$

b	$Pr(B=b \mid A=4)$
1	2/7
3	0
5	5/7

d) No, because $Pr(A=a \cap B=b) \neq Pr(A=a) \times P(B=b)$