$$A = \begin{vmatrix} -2 & 1 & 8 \\ -1 & +1 & 7 \\ 3 & 0 & 4 \end{vmatrix} \qquad B = \begin{vmatrix} 5 & 0 & -7 \\ 6 & 3 & -9 \\ -2 & -2 & 0 \end{vmatrix} \qquad C = \begin{vmatrix} 6 & 3 & -1 \\ 2 & 4 & 5 \\ -1 & -1 & 8 \end{vmatrix}$$

$$\begin{vmatrix}
-20 & -13 & 5 \\
-25 & -17 & 16 \\
7 & -8 & -21
\end{vmatrix}$$

$$\begin{vmatrix}
5 & 0 & -7 & | -2 & 1 & 8 & | -10-2| & 5 & 40-28 \\
6 & 3 & -9 & | -1 & -1 & 7 & | -12-3-27 & 6-3 & 48+2|-36 \\
-2 & -2 & 0 & | 3 & 0 & 4 & | -12-3-27 & 6-3 & 48+2|-36 \\
-4+2 & -2+2 & -16-19
\end{vmatrix}$$

$$= \begin{vmatrix} -31 & 5 & 12 \\ -41 & 3 & 33 \\ 6 & 0 & -30 \end{vmatrix}$$

(C)
$$AB-BA = \begin{vmatrix} -20 & -13 & 5 & | & -31 & 5 & | & 12 & | & 11 & -18 & -7 \\ -25 & -17 & 16 & | & -42 & 3 & 33 & = & | & 17 & -20 & -17 \\ \hline 7 & -8 & -2 & | & | & | & | & | & | & | & -8 & 9 \\ \hline \end{array}$$

(d)
$$ABC = (AB)C = \begin{vmatrix} -20 & -13 & 5 & | & 6 & 3 & -1 \\ -25 & +17 & | & 6 & | & 2 & 4 & 5 \\ 7 & -8 & -21 & | & -1 & -1 & 8 \end{vmatrix}$$

$$\begin{vmatrix} -25 & 7 & 76 & | & 2 & 4 & 5 \\ 7 & -8 & -21 & | & -1 & -1 & 8 \end{vmatrix}$$

$$= \begin{vmatrix} -120-26-5 & -b0-52-5 & 20-65+40 \\ -150-34-16 & -75-68-16 & 25-75+128 \\ 42-16+21 & 21-32+21 & -7-40-168 \end{vmatrix}$$

To get the eigenvales of A, | $\lambda I - A = 0$

$$|\lambda I - A| = |\lambda + 2 - 1 - 8| |\lambda + 1 - 7| + |1 - 7| - 8| |\lambda + 1 - 7| + |1 - 7| - 8| |\lambda + 1 - 7| + |1 - 3| |\lambda + 1| - 3| |\lambda$$

=
$$(\lambda t 2)(\lambda t 1)(\lambda - 4) + (\lambda 1)$$

= $(\lambda 3 - \lambda^2 - 33)\lambda - 57$

TO Solve 121-A1=0

入3-12-3-3-12-0

therefore $\lambda = -2.192, -3.747, 6.939$

the trace of matrix A is:

tr A= 2 2 2 = 1

$$= (\lambda + 2)(\lambda + 1)(\lambda + 4) + (\lambda + 4) - 21 - 24(\lambda + 1)$$

$$= \lambda^3 - \lambda^2 - 33\lambda - 57$$

So the eigenvalues of A is -2.192, -3.747, 6.939





$$A = \begin{vmatrix} -2 & 1 & 8 \\ -1 & -1 & 7 \\ 3 & 0 & 4 \end{vmatrix}$$

$$Ax = \lambda x$$

$$\lambda$$
 can be $-2.192, -3.747, 6.939$ State here $\lambda = 6.939$

$$\begin{vmatrix} -2 & 1 & 8 & | & \chi_1 & | & \chi_2 & | & \chi_2 & | & \chi_2 & | & \chi_3 & | & & \chi_3 & | & & \chi_3 & | & & \chi_3 & | & & \chi_3 & | & & \chi_3 & | & \chi_3 & |$$

$$04 \mid X$$

$$\frac{1}{2}$$
 $\frac{1}{2}$ $\frac{1}$

$$-2x_1+x_2+8x_3=6.939x_1$$

 $\chi_1 \approx \chi_2$

 $\chi_3 \approx 2\chi_2$

$$-3X_{1}-X_{2}+7X_{3}-6939X_{2} =$$

Statitics

1. Solutions

(1)
$$P(h) = (\frac{1}{2})^{10} = \frac{1}{1024}$$

(2)
$$P = \frac{1}{1000} \times \frac{1}{1024} = \frac{1}{1024000}$$

(3)
$$P = 1 - \left(\frac{1023}{1024}\right)^{1000} \approx 0.62487$$

- 2. Solutions $f(x) = \frac{1}{5\sqrt{2\pi}}e^{-\frac{1}{2}\left(\frac{x-u}{5}\right)^2}$

 $\int_{32}^{38} f(x) = \frac{1}{5\sqrt{2\pi}} e^{-\frac{1}{2}(x-36)^2} \Big|_{32}^{38}$

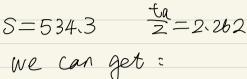
=0.443566

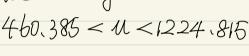
(get the result from

3. Solutions $\overline{X} - \frac{ta}{2} \left(\frac{S}{ND} \right) < u < \overline{X} + \frac{ta}{2} \left(\frac{S}{ND} \right)$

4. Solutions

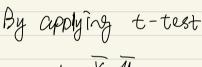


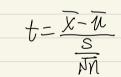


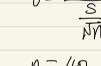












$$n=40$$
 $\overline{u}=8.5$ $x=9.6$ $s=3.2$

$$n=40$$
 $w=8.5$
 $x=9.6$ $s=3.2$
 $t=\frac{1.1}{0.51}=2.15$

When cheating to distribution table

Therefore, we should accept it.

It represents a difference!

of =39, t=2.15, d is smaller than 5%.

5. Solutions

We use the chi-square test for the variance.

$$\chi^2 = \frac{(N-1) \cdot S^2}{6^2} = \frac{14 \times 183.8}{100} = 25.7$$

By checking chi-square table,

when df=14, $\alpha=0.05$, $\alpha^2=23.685$.

In other words, when $df = \varphi$, $\chi^2 = 25.7$, d is smaller tran 0.05

Therefore, we should accept it.

The variance in grades exceeds 100.