Announcements

- Unit Test - probability & statistics
  Thursday 1/22/09
    - Sections 13.1, 13.2, 13.3, 13.4, 13.6

→ Today · · Cover 13.6
  · SKILLS TEST!

→ Tomorrow: · Review
  · SKILLS TEST!

→ Friday: · Celebration
  · SKILLS TEST

(14) Prob of:

A   Black piece

B   or Queen

overlapping / OR

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A) = \frac{16}{32}$$

$$P(B) = \frac{2}{32}$$

$$P(A \text{ and } B) = \frac{1}{32}$$

$$\frac{16}{32} + \frac{2}{32} - \frac{1}{32} = \boxed{\frac{17}{32}}$$

White king

or Black Knight } mut. ex.

(15) A   Rook

B <u>and</u> Bishop

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

$$P(A) = \frac{4}{32}$$

$$P(B) = \frac{4}{32}$$

$$\frac{4}{32} \cdot \frac{4}{32} = \frac{1}{8} \cdot \frac{1}{8} = \boxed{\frac{1}{64}}$$

Question asks
probability of this __OR__ that

Question asks prob.
of this __AND__ that

Overlapping
(this/that can
both happen):

mutually
exclusive:

$$P(A \text{ or } B) = P(A) + P(B)$$

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

Independent events

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

Dependent
events — if
"this" happens,
it changes the
odds of "that"
happening

$$P(A \text{ and } B) = P(A) \cdot P(B \text{ given } A)$$

4

⑨ A - roll a 2
B - roll a 5

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

$$\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$$

(16)

A   King

B   and   pawn

$P(A \text{ and } B) = P(A) \cdot P(B \text{ given } A)$

$$\frac{2}{32} \cdot \frac{16}{31} = \frac{1}{31}$$

Mean: Total of some numbers divided by the number of numbers

$$1, 2, 7 \qquad \frac{1+2+7}{3} = \frac{10}{3} = 3.3\overline{3}$$

Median: Middle value of a series of numbers

$$1, 2, 7 = 2$$

$$1, 2, 7, 9 = \frac{2+7}{2} = \frac{9}{2} = 4.5$$

Mode: The most common # in a series

$$1, 2, 2, 7, 7, 7, 9 = 7$$

Range: The difference between the greatest and smallest #'s in a series:

$$-2, 0, 1, 7, 20 \qquad 20 - (-2) = \boxed{22}$$

Mean absolute deviation: The difference between the mean of a set of #'s and each number in the set, condensed to one number:

$$\frac{|\bar{x} - x_1| + |\bar{x} - x_2| + |\bar{x} - x_3| \dots}{\text{number of numbers}}$$

$$1, 2, 7, 10, -4, -8$$

$$\frac{1 + 2 + 7 + 10 - 4 - 8}{6} = \frac{8}{6} = 1.33 = \bar{x}$$

$$\frac{|1.33 - 1| + |1.33 - 2| + |1.33 - 7| + |1.33 - 10| + |1.33 - ^-4| + |1.33 - ^-8|}{}$$

$$\frac{.33 + .67 + 5.67 + 8.67 + 5.33 + 9.33}{6} = \frac{30}{6} = \boxed{5}$$

Homework:
  p. 877 ~~1-24 all~~

  ~~p. 896-900 1-25 all~~

  ~~p. 901 1-14 all~~

3-8 all
11, 13, 20