

ALG 2 PRACTICE #30

SOLUTIONS

(1)

a) $\frac{23}{37}$

b) $\frac{21}{64}$

c) $\frac{8}{63}$

(2)

4 pair blue jeans

6 pair black

5 pair grey

15 TOTAL

THESE ARE
INDEPENDENT EVENTS SINCE YOU
 PUT EACH PAIR BACK INTO
 THE BAG BEFORE TAKING
 NEXT PAIR.

a) $\frac{6}{15} \cdot \frac{5}{15} = \frac{30}{225}$

b) $\frac{4}{15} \cdot \frac{5}{15} \cdot \frac{4}{15} = \frac{80}{3375}$

(3)

12 COKE

8 7-up

10 ROOT BEER

30 TOTAL

THESE ARE
DEPENDENT EVENTS BECAUSE
 YOU DON'T RETURN EACH
 CAN BEFORE SELECTING
 NEXT ONE.

a) $\frac{8}{30} \cdot \frac{12}{29} = \frac{96}{870}$

b) $\frac{10}{30} \cdot \frac{12}{29} \cdot \frac{8}{28} = \frac{960}{24,360}$

c) $\frac{12}{30} \cdot \frac{11}{29} = \frac{132}{870}$

- (4) These can't happen together so they are mutually exclusive.

$$P(\text{shout or 3+goals}) = \frac{2}{5} + \frac{1}{8}$$

$$= \boxed{52.50\%}$$

- (5) These can't happen together so they are mutually exclusive.

$$P(\text{ride w/ sister or ride w/ parents}) = \frac{3}{7} + \frac{5}{12} = \frac{71}{84}$$

$$= \boxed{84.52\%}$$

- (6) a) These can happen at the same time so they aren't mutually exclusive.

$$P(\text{green shirt or black pants}) = \frac{3}{8} + \frac{2}{7} - \frac{3}{8} \cdot \frac{2}{7}$$

$$= \boxed{55.36\%}$$

- b) These can't happen at the same time so they are mutually exclusive.

$$P(\text{black pants or blue pants}) = \frac{2}{7} + \frac{5}{12}$$

$$= \boxed{70.24\%}$$

⑦ a) $\bar{x} = 24.6$

b) $\text{MODE} = 16 \text{ \& } 19$

c) $\text{median} = 21.5$

d) Range

⑧ Set A has more Variation due to its larger standard deviation

⑨ a) $\frac{275}{350} \Rightarrow 79\%$

b) $\frac{1}{\sqrt{350}} \Rightarrow \pm 5\%$

c) $79 \pm 5\% = 74\% \text{ to } 84\%$

d) $(.74)(\$20,000) \text{ to } (.84)(\$20,000)$

$\$14,800 \text{ to } \$16,800$

(10)

$$\pm 5\% \rightarrow 0.05$$

$$\left(\frac{1}{1n}\right)^2 = (0.05)^2$$

$$\frac{1}{n} = \frac{0.0025}{1}$$

$$n = 400$$

Sample size was
400

(11)

15 #'s TOTAL

$$a) 20\% \text{ of } 15 = (.20)(15) = 3$$

20th Percentile is

24

because it has
3 #'s below it

$$b) 80\% \text{ of } 15 = (.80)(15) = 12$$

80th Percentile is

60

because it
has 12
#'s below
it

c) there are 9 #'s below 45.

$$\frac{9}{15} \times 100 = 60\%$$

45 is at the 60th Percentile