$P(A) = \frac{1}{4}$, $P(B) = 60\%$, $P(C) = 0.20$ (A, B & C are independent events)

1) P(A and B)

$P(A) \cdot P(B)$ $\frac{1}{4} \cdot \frac{60}{100} = \frac{1}{4} \cdot \frac{3}{5} = \boxed{\frac{3}{20}}$ or 15% or .15

2) P(B or C) if Mutually Exclusive

$P(B) + P(C)$ $.60 + .20 = \boxed{.80}$ or 80% or $\frac{4}{5}$

3) P(A or C) if ***not*** Mutually Exclusive

$P(A) + P(C) - P(A \text{ and } C)$ $\frac{1}{4} + \frac{1}{5} - \left(\frac{1}{4} \cdot \frac{1}{5}\right)$

$\frac{1}{4} + \frac{1}{5} - \frac{1}{20} = \frac{5}{20} + \frac{4}{20} - \frac{1}{20} =$

$\frac{8}{20} = \boxed{\frac{2}{5}}$ or 40% or .40

5 Large Blue Marbles, 2 Large Green Marbles, 3 Small Blue, and 2 Small Green Marbles

4) P(Large or Blue)

$P(Large) + P(Blue) - P(Large\,Blue)$ $\frac{7}{12} + \frac{8}{12} - \frac{5}{12} = \frac{10}{12} = \boxed{\frac{5}{6}}$

5) With Replacement: P(a Blue then a Large)

$P(Blue) \cdot P(Large)$ $\frac{8}{12} \cdot \frac{7}{12} = \frac{1}{3} \cdot \frac{7}{6} = \boxed{\frac{7}{18}}$

6) Without Replacement: P(Two Green)

$P(Green) \cdot P(Green)$ $\frac{4}{12} \cdot \frac{3}{11} = \frac{1}{1} \cdot \frac{1}{11} = \boxed{\frac{1}{11}}$

7) Without Replacement: P(a Blue then a Green)

$P(Blue) \cdot P(Green)$ $\frac{8}{12} \cdot \frac{4}{11} = \frac{2}{3} \cdot \frac{4}{11} = \boxed{\frac{8}{33}}$

P(B | A) = Probability of event B, given event A

	Male	Female
Freshmen	4	0
Sophomore	6	1
Juniors	1	5
Seniors	0	3

1) P(Female) $\frac{9}{20}$

2) P(Sophomore | Female) $\frac{1}{9}$

3) P(Female | Sophomore) $\frac{1}{7}$

4) P(Sophomore | Junior) $\frac{0}{6} = 0$

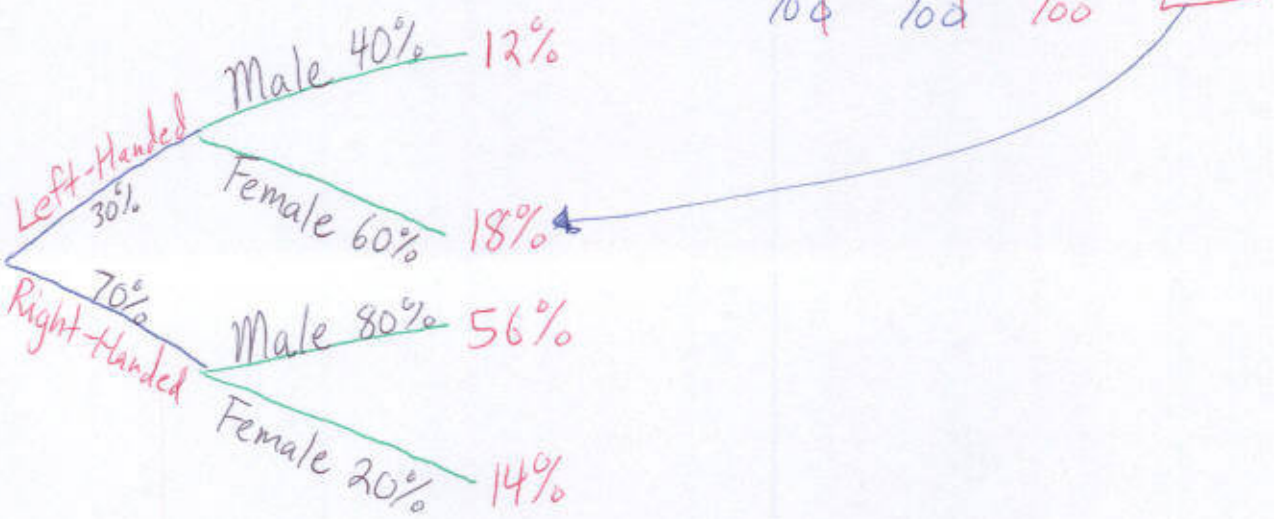
Survey: 30% of the people were left-handed, 40% of the left-handed people are males, and 20% of the right-handed people are females.

5) P(male | left-handed)

40%

6) P(left-handed female)

$\frac{30}{100} \cdot \frac{60}{100} = \frac{18}{100} = 18\%$



1. Standard Deviation: 6, 11, 10

$$\sigma = \sqrt{\frac{(6-9)^2+(11-9)^2+(10-9)^2}{3}}$$

$$\text{mean} = \frac{6+11+10}{3} = \frac{27}{3} = 9$$

$$\sigma = \sqrt{\frac{(-3)^2+(2)^2+(1)^2}{3}}$$

$$\sigma = \sqrt{\frac{9+4+1}{3}} = \sqrt{\frac{14}{3}}$$

2. Which of the following set of data will probably have the **largest** standard deviation and which will have the **smallest**?

a) 13, 25, 1, 5, 7, 12
b) 6, 1, 4, 3, 5, 1
c) 80, 75, 30, 41, 2, 1
d) 18, 20, 37, 31

Largest [C]

Smallest [B]

3. Variance: 8, 2, 7, 3

$$\text{Mean} = \frac{8+2+7+3}{4} = \frac{20}{4} = 5$$

$$\text{Variance} = \frac{(8-5)^2+(2-5)^2+(7-5)^2+(3-5)^2}{4}$$

$$= \frac{9+9+4+4}{4} = \frac{26}{4} = \boxed{\frac{13}{2}}$$

$3x^3 \cdot 7x^6 = (3 \cdot 7)x^{3+6}$

$21x^9$

$(-1x^8y^1)(2x^9y^7) = (-1 \cdot 2)x^{8+9}y^{1+7}$

$-2x^{17}y^8$

$(x^6)^3 = x^{6 \cdot 3} = x^{18}$

$4x^{12}(x^5)^3 = 4x^{12} \cdot x^{15}$

$4x^{27}$

$\frac{x^9}{x^3} = x^{9-3} = x^6$

$\frac{16x^6y^{11}}{10x^5y^7} = \frac{8}{5}x^{6-5}y^{11-7}$

$\frac{8}{5}x^1y^4 = \frac{8xy^4}{5}$

$\frac{x^7}{x^9} = x^{7-9} = x^{-2} = \frac{1}{x^2}$

$8^{-2} = \frac{1}{8^2} = \frac{1}{64}$

$-7x^{-8}y^4 = \frac{-7y^4}{x^8}$

$(3x)^4 = (3)^4(x)^4 = \boxed{81x^4}$

$(2x^5y^{-7})^{-3} = (2)^{-3}(x^5)^{-3}(y^{-7})^{-3}$

$\frac{1}{8} \cdot x^{-15} y^{21} = \boxed{\frac{y^{21}}{8y^{15}}}$

$\left(\frac{2x}{3}\right)^3 = \frac{(2x)^3}{(3)^3} = \boxed{\frac{8x^3}{27}}$

$\left(\frac{x^8}{y^3}\right)^{-2} = \frac{x^{-16}}{y^{-6}} = \boxed{\frac{y^6}{x^{16}}}$

$\frac{x^{12}}{3x^{12}} = \frac{1}{3}x^{12-12} = \frac{1}{3}x^0 = \boxed{\frac{1}{3}}$

$-3xy^0 = \boxed{-3x}$

$(5xy^6)^0 = \boxed{1}$

1. Simplify and rewrite in radical notation:

$x^{10/16}$

$x^{5/8} = \sqrt[8]{x^5}$

2. Simplify and rewrite in rational exponent notation: $\sqrt[6]{x^{14}}$

$x^{14/6} = x^{7/3}$

3. Simplify: $16^{3/2}$

$(2^4)^{3/2} = 2^{12/2} = 2^6$

64

Solve: $3\sqrt{5-2x}-4=11$

$+4 \quad +4$

$\frac{3\sqrt{5-2x}}{3} = \frac{15}{3}$

$(\sqrt{5-2x})^2 = (5)^2$

$5-2x = 25$

$-5 \quad -5$

$\frac{-2x}{-2} = \frac{20}{-2}$

$\boxed{x=-10}$