

PRECALC - BE TUESDAY 2-23-10

① 27 students in class, 11 blue eyes, 13 brown eyes, 3 green eyes. If 3 students chosen at random, find:

Ⓐ $P(3 \text{ blue})$ Ⓑ $P(2 \text{ brown}, 1 \text{ blue})$

Ⓒ $P(\text{no brown})$ Ⓓ $\text{ODD}(1 \text{ green})$

Ⓐ $P(3 \text{ blue}) = \frac{11}{27} \cdot \frac{10}{26} \cdot \frac{9}{25} = \boxed{\frac{11}{195}}$

OR $\frac{{}^{11}C_3}{{}^{27}C_3} = \frac{\frac{11!}{8!3!}}{\frac{27!}{24!3!}} = \frac{11 \cdot 10 \cdot 9}{3 \cdot 2} = \boxed{\frac{11}{195}}$ ✓

LOOK

Ⓑ $P(2 \text{ brown}, 1 \text{ blue}) = \frac{{}^{13}C_2 \cdot {}^{11}C_1}{{}^{27}C_3} = \frac{\frac{13!}{11!2!} \cdot 11}{\frac{27!}{24!3!}} = \frac{13 \cdot 12}{2} \cdot 11 = \frac{13 \cdot 6 \cdot 11}{9 \cdot 13 \cdot 25} = \boxed{\frac{22}{75}}$

Ⓒ $P(\text{no brown}) \Rightarrow \frac{14}{27} \cdot \frac{13}{26} \cdot \frac{12}{25} = \frac{56}{450} = \boxed{\frac{28}{225}}$ or?

Ⓓ $\text{ODDS}(1 \text{ green}) \Rightarrow \frac{{}^3C_1 \cdot {}^{24}C_2}{{}^{27}C_3} = \frac{3 \cdot 276}{2925} = \frac{828}{2925}$

$\therefore \text{ODDS} \Rightarrow \frac{828}{2097} = \boxed{\frac{92}{233}}$

$\frac{{}^{14}C_3}{{}^{27}C_3}$

Ch. 10 = Conics $\Rightarrow$ Conic Sections

$\Rightarrow$ "cuts" of a
Right-circular cone

$\Rightarrow$ parabolas, ellipse



CIRCLE



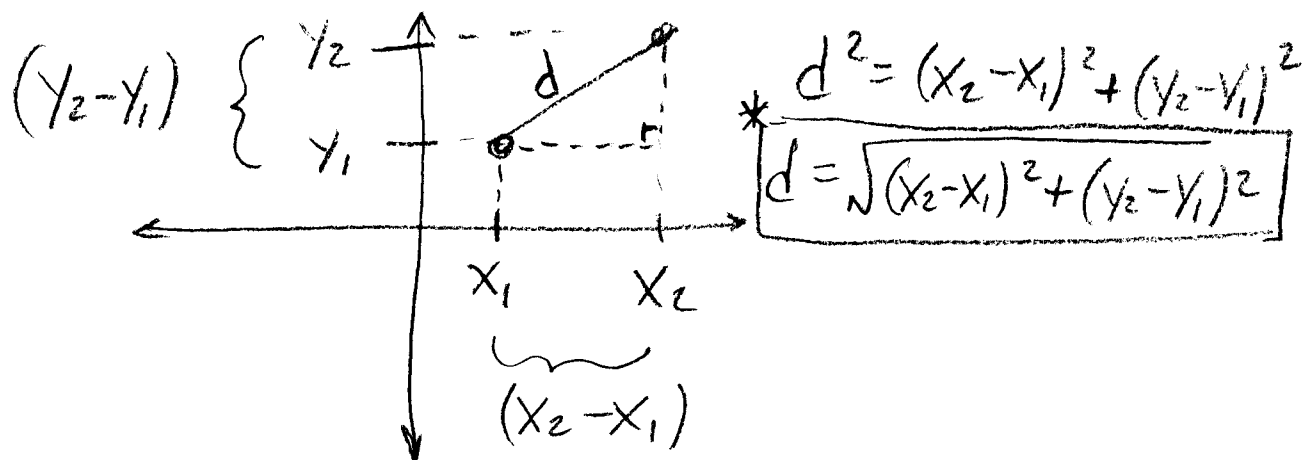
hyperbola



BASIC curves of NATURE. Can describe
by geometry or Algebra. THE X-Y
coordinate plane "merges" both methods.

Ch. 10-1 Review $\Rightarrow$ Intro. to Analytic Geometry

DISTANCE between ANY two points $(x_1, y_1), (x_2, y_2)$



Ex 1
Pg 616

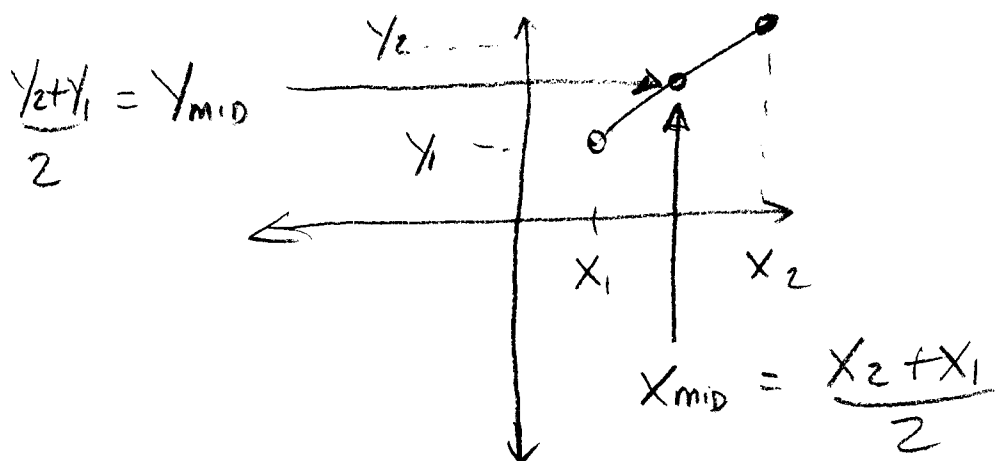
distance between $(-3, 7)$ and $(2, -5)$

$$d^2 = (-5-7)^2 + (2+3)^2$$

$$d = \sqrt{(-12)^2 + (5)^2} = \sqrt{144+25} \\ = \sqrt{169} = \boxed{13 \text{ units}}$$

Midpoint, M of line segment between

Any 2 points (x_1, y_1) , (x_2, y_2)



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$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

↑
Avg.
of
 x_1, x_2

↑
Avg. of
 y_1, y_2

Ex Find d & M for $(w-2, w), (w, 4w)$

$$d \Rightarrow (w-2, w), (w, 4w)$$

$$d^2 = (4w - w)^2 + [w - (w - 2)]^2$$

$$(3w)^2 + [2]^2$$

$$d = \sqrt{9w^2 + 4}$$

$$M = \left(\frac{(w-2) + (w)}{2}, \frac{w + 4w}{2} \right)$$

$$M = \left(\frac{2w-2}{2}, \frac{5w}{2} \right)$$

$$M = \left(w-1, \frac{5w}{2} \right)$$

Homework: Pg 620 # 11, 12, 17 to 19.