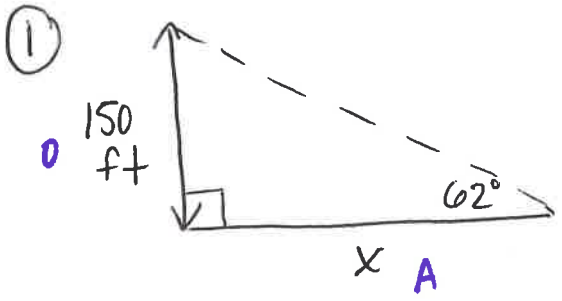
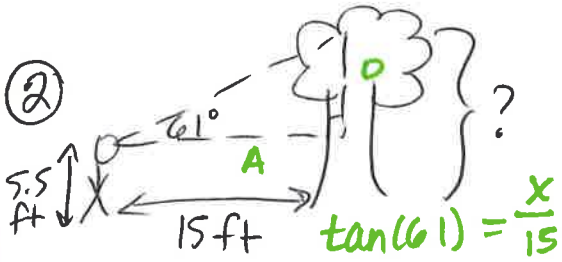
Quarter 2 Review

① 

$\tan(62) = \frac{150}{x}$

$x \cdot \tan(62) = 150$

$x = \frac{150}{\tan(62)} = 79.8$ feet

② 

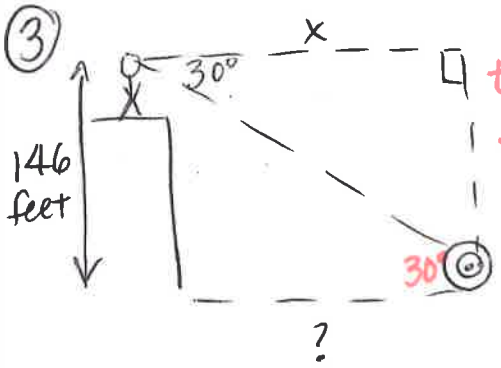
$\tan(61) = \frac{x}{15}$

$15\tan(61) = x$

$27 \approx x$

$+5.5$

about 33 feet

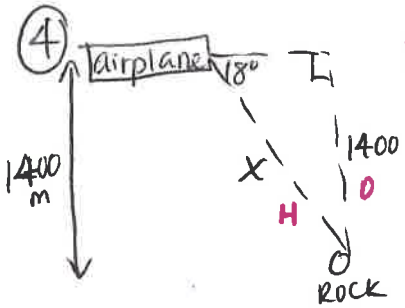
③ 

$\tan(30) = \frac{146}{x}$

$x \cdot \tan(30) = 146$

$x = \frac{146}{\tan(30)}$

$x \approx 252.9$ ft

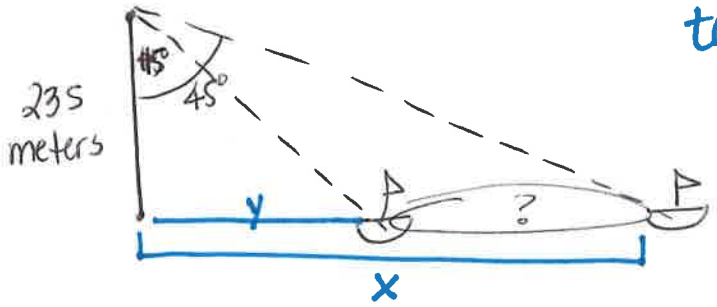
④ 

$\sin(18) = \frac{1400}{x}$

$x \cdot \sin(18) = 1400$

$x = \frac{1400}{\sin(18)}$

$x \approx 4530.50$ meters

⑤ 

$\tan(45) = \frac{x}{235}$

$x = 235\tan(45)$

$x = 235$ m

$\tan(15) = \frac{y}{235}$

$y = 235\tan(15)$

$y = 62.97$ m

172.03m apart

⑥ a) $\sin(29) = \frac{x}{18}$

$x = 18\sin(29)$

$x \approx 8.73$ units

b) $\sin(30) = \frac{12}{x}$

$x \cdot \sin(30) = 12$

$x = \frac{12}{\sin(30)}$

$x \approx 24$ units

c) $\cos(x) = \frac{13}{18}$

$x = \cos^{-1}\left(\frac{13}{18}\right)$

$x \approx 43.76°$

d) $12^2 + 18^2 = x^2$

$468 = x^2$

$x = \sqrt{468}$

$x \approx 21.63$ in

$6\sqrt{13}$ in

⑦ C(8, -2)

a) (12, -5) b) (32, -8) c) (-2, -8) d) (8, 2) e) ~~(-2, 8)~~ (-8, 2) f) (-8, -2)

g) (2, 8) h) (-2, 8) i) (-8, -2) → (8, 2) j) (8, 2) → (7, 9)

⑧ P''(4, -6)

left 5, up 3 1st (-1, -3) → reflect $y = x$ (-3, -1)

⑨ P'''(-12, 10)

dialate $\frac{1}{2}$ 1st (-6, 5) → reflect y-axis (6, 5) → rotate 270° clockwise $(-y, x)$ (-5, 6)

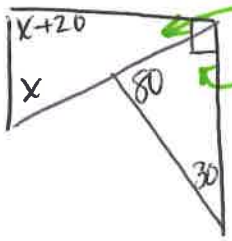
(10) a) alternate interior angles
b) alternate exterior angles
c) corresponding angles
d) consecutive exterior angles
e) consecutive interior angles

(11) $m\angle 1 = 112°$
$m\angle 2 = 68°$
$m\angle 3 = 112°$
$m\angle 4 = 68°$
$m\angle 6 = 68°$
$m\angle 7 = 112°$
$m\angle 8 = 68°$

(12) a) $2 \cdot AE = BD$
$2(6x+5) = 6x+13$
$12x+10 = 6x+13$
$6x = 3$
$x = \frac{1}{2}$
$BD = 6(\frac{1}{2}) + 13 = 3+13 = 16$
$CD = \frac{1}{2}(BD) = \frac{1}{2}(16)$
8 units

b) $2x+4 = 7x-26$
$30 = 5x$
$6 = x$
$FD = 2(FE) = 2(2x+4) = 4x+8$
$= 4(6)+8 = 24+8$
32 units

c) $\Delta ACE = 720$
$\Delta FBD = 2(\Delta ACE) = 2(720) =$ 1440 units

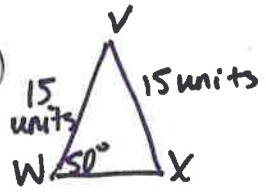
(13)


$90-70 = 20°$
$180-(80+30)$
$70°$
$20+x+x+20 = 180$
$2x+40 = 180$
$2x = 140$
$x = 70$
$m\angle M = 70+20 =$ 90°

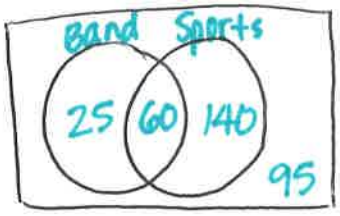
(14) $2(QP) = SU$
$2(3x+9) = 30$
$6x+18 = 30$
$6x = 12$
$x = 2$
$TQ = 5(2)-1$
$TQ = 9$ units
$TS = 2(TQ)$
$= 2(9)$
$=$ 18 units

(15) $WV = TS$
$4x+1 = x+7$
$3x = 6$
$x = 2$
$TU = 4-x$
$= 4-2$
$=$ 2 units

(16) $m\angle W = m\angle T$
$\therefore$
$m\angle T = 2x-7$
$m\angle T + m\angle S + m\angle U = 180$
$2x-7+47+3x-15 = 180$
$5x+25 = 180$
$5x = 155$
$x =$ 31

(17)


Isosceles Δ
$\therefore$
$m\angle W = m\angle X$
So, $m\angle V = 180-2(50)$
$= 180-100$
$=$ 80°

(18) a) 

b) $\frac{25}{320} = \boxed{\frac{5}{64}}$

c) 140 students

(19) a) $\frac{\text{Total walk}}{\text{overall}} = \frac{88}{500} = \boxed{\frac{22}{125}}$

b) $\frac{\text{walk w/9th-10th grade}}{\text{overall}} = \frac{30}{500} = \boxed{\frac{3}{50}}$

c) $\frac{\text{bus w/9th-10th grade}}{\text{9th-10th grade}} = \frac{106}{210} = \boxed{\frac{53}{105}}$

d) $\frac{\text{car to School total} + \text{11th/12th total} - \text{intersection}}{500}$

$\frac{254 + 290 - 184}{500} = \frac{360}{500} = \boxed{\frac{18}{25}}$

(20) a) heart + face − intersection

$\frac{13 + 12 - 3}{52} = \frac{22}{52} = \boxed{\frac{11}{26}}$

b) Face, then ace

$\left(\frac{12}{52}\right)\left(\frac{4}{51}\right) = \boxed{\frac{4}{221}}$

c) $\frac{\text{Queen w/red}}{\text{red}} = \frac{2}{26} = \boxed{\frac{1}{13}}$

d) $\frac{\text{non-face card diamonds}}{\text{total}} = \frac{13-3}{52} = \frac{10}{52} = \boxed{\frac{5}{26}}$

e) $\frac{\text{black kings}}{\text{King}} = \frac{2}{4} = \boxed{\frac{1}{2}}$

f) #fives : #non-fives

4 : 48 → $\boxed{1:12}$

(21) ENGLISH + VOWEL − intersection

(A, E, I, O, U) (E, I)

$\frac{6 + 5 - 2}{26} = \boxed{\frac{10}{26}} = \boxed{\frac{5}{13}}$

(22) "and" → already given in problem!

.06 or 6%

(23) not making field goal = 1 − making field goal

= 1 − .65

= .35

4 times in a row = $(.35)^4 \approx .0150$

$\approx \boxed{1.5\%}$

(24) (jacket)(hat)(scarf + mittens)

(7)(5)(6+3)

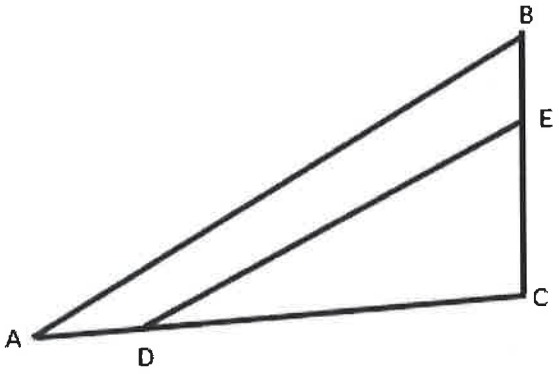
(7)(5)(9) = $\boxed{315 \text{ outfits}}$

(25) a) jet ski + boat − intersection = .73 + .42 − .38 = .77 → 77%

b) $\frac{\text{both}}{\text{jet ski}} = \frac{.38}{.73} = \boxed{\frac{38}{73}}$

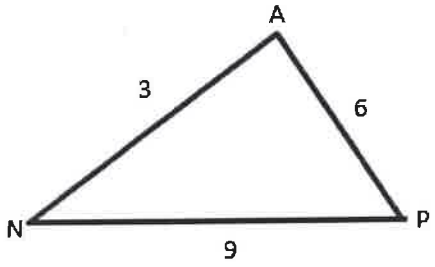
26. Given $\frac{\overline{AC}}{\overline{DC}} = \frac{\overline{BC}}{\overline{EC}}$

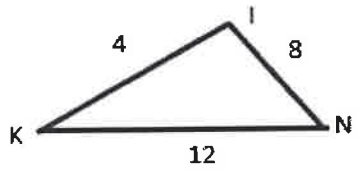
Prove $\Delta ABC \sim \Delta DEC$



Statements	Justifications
1. $\frac{\overline{AC}}{\overline{DC}} = \frac{\overline{BC}}{\overline{EC}}$	1. given
2. $\angle C \cong \angle C$	2. Reflexive Property of congruence
3. $\Delta ABC \sim \Delta DEC$	3. SAS ~ Thm

27. Prove $\Delta NAP \sim \Delta KIN$



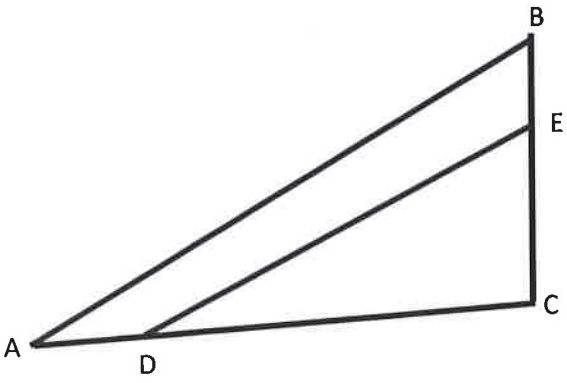


$\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

Statements	Justifications
1. $\frac{NA}{KI} = \frac{AP}{IN} = \frac{PN}{NK}$	1. Algebra
2. $\Delta NAP \sim \Delta KIN$	2. SSS ~ Thm

28. Given $\overline{AB} \parallel \overline{DE}$

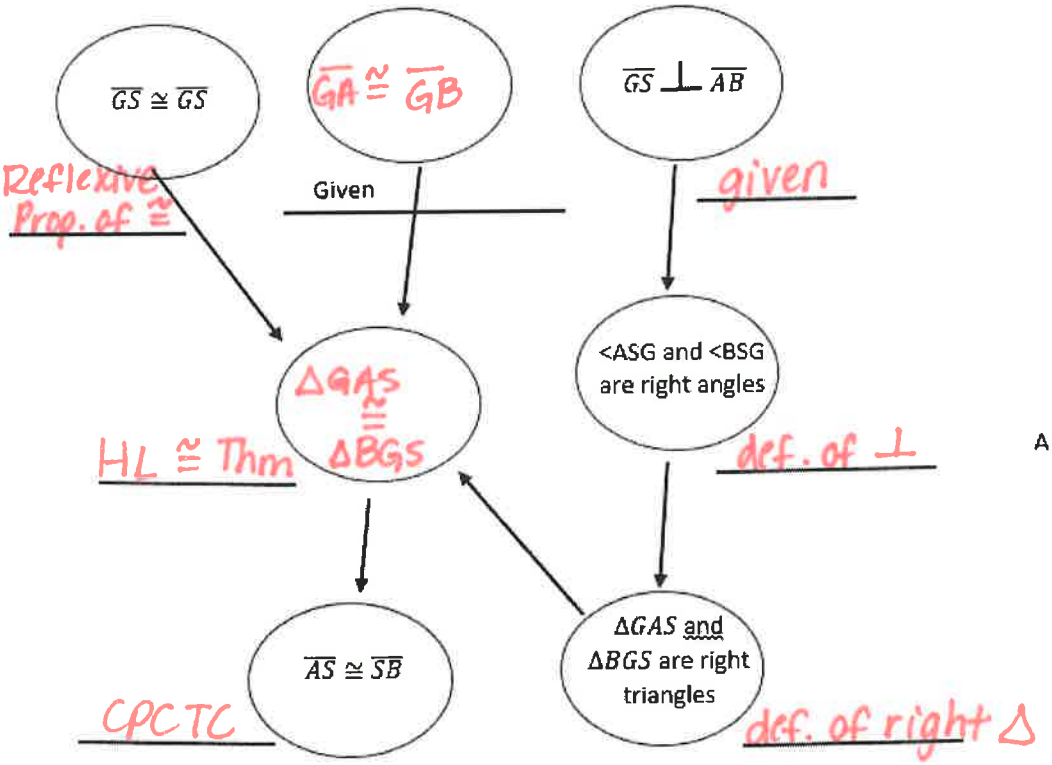
Prove $\Delta ABC \sim \Delta DEC$

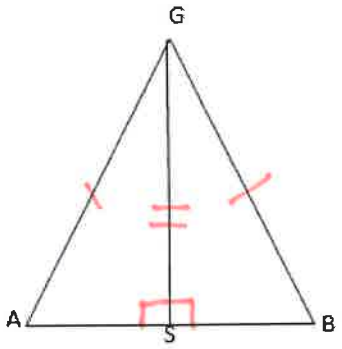


Statements	Justifications
1. $\overline{AB} \parallel \overline{DE}$	1. Given
2. $\angle D \cong \angle A$	2. corresponding angles are $\cong$
3. $\angle C \cong \angle C$	3. Reflexive Property of congruence
4. $\Delta ABC \sim \Delta DEC$	4. AA ~ Thm

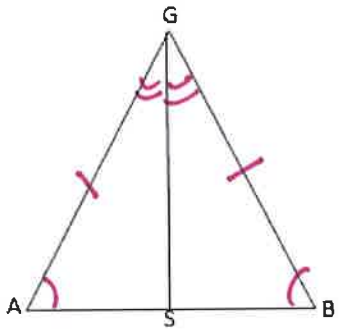
29. Given ΔGAB with $\overline{GS} \perp \overline{AB}$, and $\overline{GA} \cong \overline{GB}$.

Prove $\overline{AS} \cong \overline{SB}$.



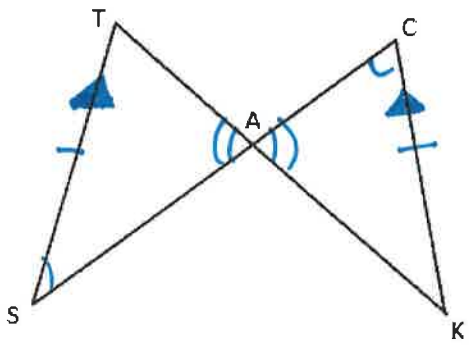


30. Given $\overline{GA} \cong \overline{GB}$ and $\overline{GS}$ is an angle bisector, prove $\Delta GAS \cong \Delta GBS$.



Statements	Justifications
1. $\overline{GA} \cong \overline{GB}$	1. given
2. $\angle A \cong \angle B$	2. Isosceles Triangle Theorem
3. $\overline{GS}$ is angle bisector	3. Given
4. $\angle AGS \cong \angle BGS$	4. Def of angle bisector
5. $\Delta GAS \cong \Delta GBS$	5. ASA ≅ Post.

31. Given $\overline{ST} \cong \overline{CK}$ and $\overline{ST} \parallel \overline{CK}$, prove $\Delta STA \cong \Delta CKA$



Statements	Justifications
1. $\overline{ST} \parallel \overline{CK}$	1. Given
2. $\overline{ST} \cong \overline{CK}$	2. Given
3. $\angle S \cong \angle C$	3. Alternate Interior Angles Thm
4. $\angle TAS \cong \angle KAC$	4. Vertical Angles are Congruent
5. $\Delta STA \cong \Delta CKA$	5. AAS ≅ Thm