☆ **Exam Date:** _____

☆ <u>**Exam Format:**</u>

                  Part I: 39 multiple choice

                  Part II: 10 Matching Statements to Reasons

                  Part III: 18 short answer

                  Part IV: 2 Proofs

                  Part V: 2 Open Ended Problems

☆ You will be allowed to use a scientific calculator for this exam.

☆ I also plan on doing the following to review for the exam:

    ○ Reading through notes.

    ○ Re-doing previous class/home work problems.

    ○ Re-doing previous quiz/test problems.

    ○ Reading my textbook.

    ○ Using online resources/videos.

    ○ Seeing my teacher to ask questions.

    ○ <u>LOOK OVER ALL MY PROOFS!</u>

Definitions & Terms to Know!

Coplanar

Collinear

Skew

Midpoint

Perimeter

Angle Bisector

Complementary

Supplementary

Linear Pair

Vertical Angles

Adjacent Angles

Opposite Rays

Acute, Right, Obtuse, Equiangular

Scalene, Isosceles, Equilateral

Triangle Sum Theorem

Exterior Angle Theorem

Base Angle Theorem

Converse to the Base Angle Theorem

Slope (formula, parallel lines, perpendicular lines)

Parallel lines

Perpendicular lines

Transversal

Alternate Interior Angles

Alternate Exterior Angles

Consecutive Interior

Logic Statements (if-then, converse, inverse, contrapositive)

Counterexample

Slope-intercept form (y = mx + b)

Ray, line, segment, point, plane notation

SAS, SSS, ASA, AAS, HL congruence theorems/postulates

Segment Addition Postulate

30-60-90 Triangles

45-45-90 Triangles

SOH-CAH-TOA

1.

Match each of the following vocabulary words with its definition.

a. line segment
b. line
c. obtuse angle

d. point
e. parallel lines
f. perpendicular lines

b 1. a straight path that extends without end in opposite directions
a 2. a part of a line between two endpoints
c 3. an angle whose measure is greater than 90° but less than 180°
f 4. two lines that intersect to form 90° angles
d 5. an exact location in space
e 6. two lines that never intersect

Match each of the following vocabulary words with its definition.

a. right angle
b. ray
c. acute angle

d. angle
e. plane

b 7. a part of a line that starts at one endpoint and extends forever
a 8. an angle that measures 90 degrees
d 9. a figure formed by two rays with a common endpoint called a vertex
c 10. an angle that measures less than 90 degrees
e 11. a flat surface that extends forever

2. Use the diagram to name each geometric figure.

(A) name three **coplanar** points. Any of the following 3 points ·G, ·B, ·C, ·F, ·D

(B) Name two lines on the figure. $\overleftrightarrow{BD}$ and $\overleftrightarrow{BF}$

(C) Name a plane on the figure. ∠BCF

(D) Are points *G, B,* and *D* collinar? yes, they are on the collinear? same line.
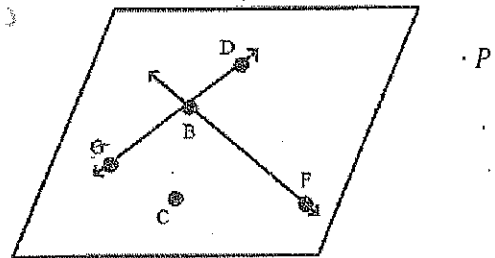
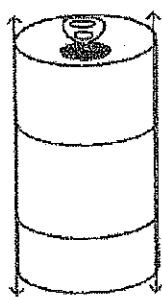3. Classify each angle acute, obtuse, obtuse, or straight.

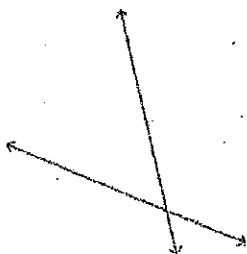(A) acute

(B) right

(C) right

obtuse
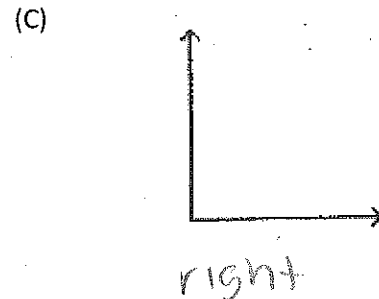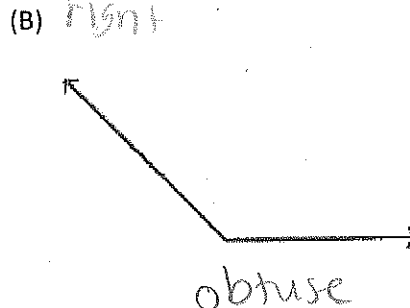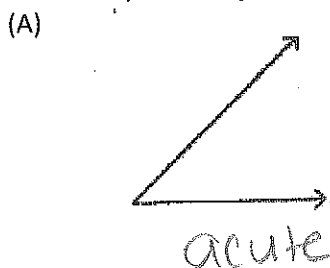
4. Classify the pair of lines as intersecting, parallel, perpendicular, or skew lines.
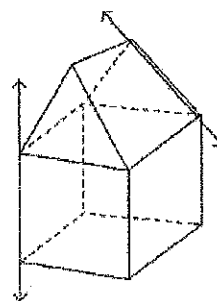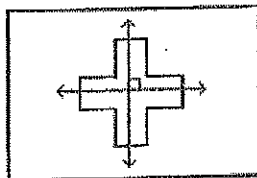
(A)

parallel

(B)

intersecting

(C)

skew

5. A school nurse has the following patch on her nurse's uniform. What type of lines are the lines on the patch?
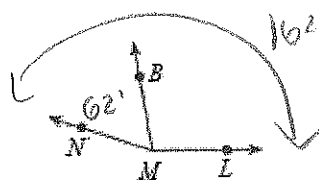
perpendicular lines

6. E is in the interior of $< KLM$.

If $m < ELM = 78°$ and $m < KLE = 95°$,

Then $m < KLM = \underline{173}$ °

78
95°

7. If $m < NMB = 62°$ and $m < NML = 162°$,

162°
B
62°
N
M   L

$m < BML = 100°$

8. Two angles $< ABC$ and $< CBD$ are supplementary. If $m < ABC = 62°$, what is the $m < CBD$?

118°

9. Two angles $< ABC$ and $< CBD$ are complementary. If $m < ABC = 71°$, what is the $m < CBD$?

19°

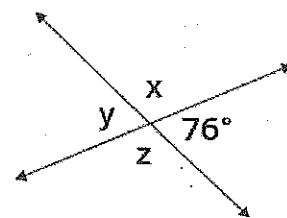**10.** If $\overline{QS}$ bisects $\angle PQR$. Find the measure of $\angle PQR$

P 36°
7x−27
S 36°
3x+9
Q
R
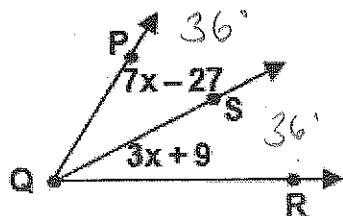
$7x-27 = 3x+9$

$4x = 36$

$x = 9$

72°

11. $m < X = 104°$

$m < Y = 76°$

$m < Z = 104°$

X
y   76°
z

What is the relationship between $< X$ and $< Z$?

Vertical angles

What is the relationship between $< X$ and $< Y$?

Linear Pair/Supplementary

12. Point M is the midpoint of $\overline{VW}$.
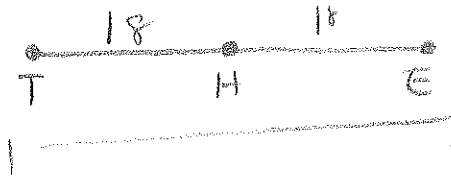Find the length of $\overline{VM}$.

$4x-1 = 3x+3$

$x = 4$

$VM = 15$

13. If H is the midpoint of $\overline{TE}$, and $\overline{TH} = 18$, then $\overline{TE} =$ _____.

36

14. Classify the following triangles.
(a) A triangle with sides 5", 5", and 5" is

Equilateral and Equiangular

(b) A triangle with angles $90°, 45°, and\ 45°$ is

isosceles, right

(c) A triangle with sides 3", 4", and 9" is

not a triangle

(d) A triangle with angles $50°, 60°, and\ 70°$ is

scalene, acute

(e) A triangle with sides 8", 8", and 12" is

$12^2 \bigcirc 8^2 + 8^2$

$144 > 64 + 64$

$144 > 128$

isosceles, obtuse

(f) A triangle with angle $115°, 35°, and\ 30°$ is

scalene, obtuse

15.

(a) The intersection of two lines is a ___point___.

(b) The intersection of two planes is a ___line___.

16. $m\angle 1 = 5x - 7$, $x = \underline{11}$

$5x - 7 + 132 = 180$

$5x + 125 = 180$

$-125 \quad -125$

$\dfrac{5x}{5} = \dfrac{55}{5}$

$\boxed{x = 11}$

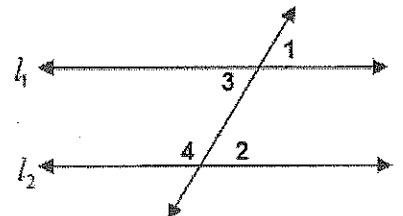$132° \angle 1 \quad 5x-7$
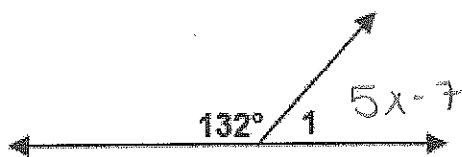
17. Given: $l_1 \parallel l_2$
(a) What angles are congruent? And Why?

$\angle 1 \cong \angle 3$; vertical angles

(b) What angles add up to 180°? And Why?

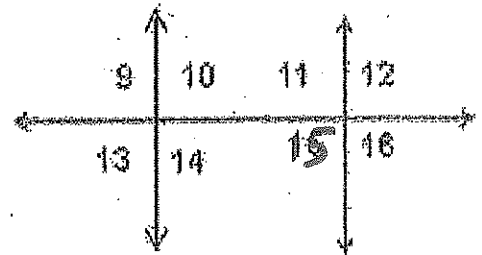$\angle 2 + \angle 4 = 180°$

Linear Pair / supplementary

18.

Use the figure at the right to answer problems 1-8.

Classify each pair of angles as one of the following:

(a) alternate interior angles   (b) corresponding angles

(c) alternate exterior angles   (d) vertical angles

(e) supplementary angles   (f) none

1. _c_ ∠9 & ∠16   5. _b_ ∠9 & ∠11

2. _e_ ∠15 & ∠11   6. _f_ ∠9 & ∠15

3. _a_ ∠10 & ∠15   7. _e_ ∠13 & ∠14

4. _d_ ∠12 & ∠15   8. _a_ ∠14 & ∠11

19.

$m\angle 2 = 97°$ $m\angle 6 = 83°$

$m\angle 3 = \underline{97°}$ $m\angle 5 = \underline{97°}$

$m\angle 10 = \underline{97°}$ $m\angle 7 = \underline{83°}$

$m\angle 9 = \underline{83°}$ $m\angle 16 = \underline{97°}$
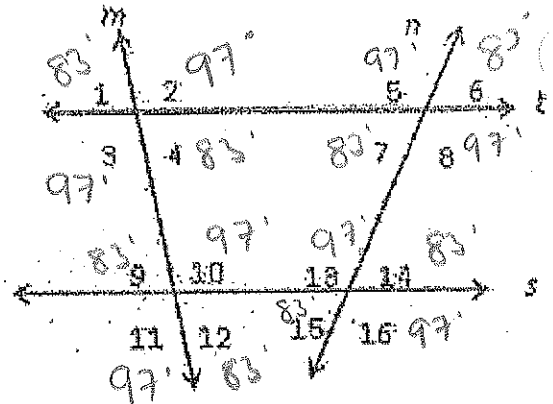
20. Find the value of x given that $s \parallel t$

(A) $m\angle 4 = 77°$, $m\angle 8 = 4x + 57$ Corresponding angles.
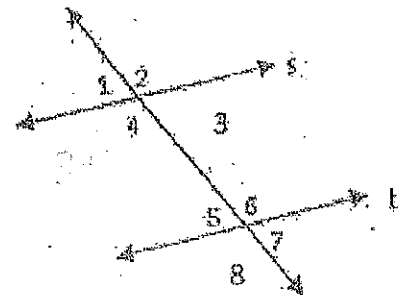
$$4x + 57 = 77$$
$$4x = 20$$
$$\boxed{x = 5}$$

(B) $m\angle 1 = 6x - 5$, $m\angle 7 = 115°$ Alternate Exterior Angles
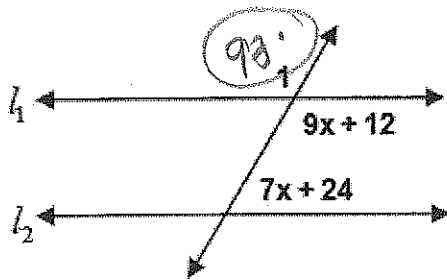
$$6x - 5 = 115$$
$$6x = 120$$
$$\boxed{x = 20}$$

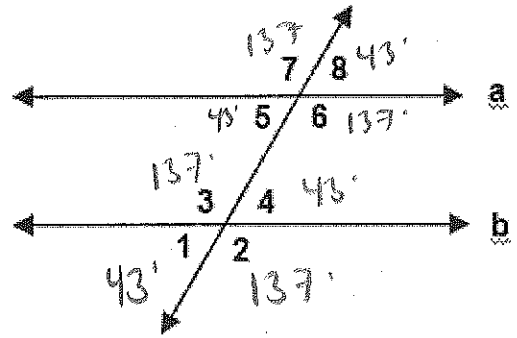**21.**

Given $l_1 \| l_2$, find the $m\angle 1$.

$93°$ ①

l_1 ← 9x + 12 →

7x + 24

l_2

$9x + 12 + 7x + 24 = 180°$

$16x + 36 = 180°$

$16x = 144$

$x = 9$

22. In the diagram, if $a \| b$ and $m < 1 = 43°$, what is $m < 7$?

137°
7 / 8 43°
43° 5 / 6 137° → a

137°
3 / 4 43°
43° 1 / 2 137° → b

$\angle 7 = 137°$

23. Find the value of x.

10x

11x − 8

$10x = 11x - 8$

$-11x \qquad -11x$

$\dfrac{-1x}{-1} = \dfrac{-8}{-1}$
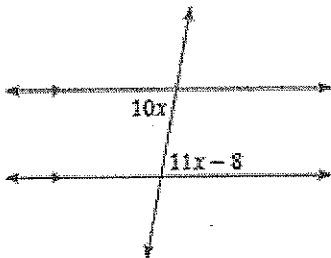
$x = 8$

24. Find the value of x.

26x + 2

80°

$26x + 2 = 80$

$\qquad -2 \quad -2$

$\dfrac{26x}{26} = \dfrac{78}{26}$
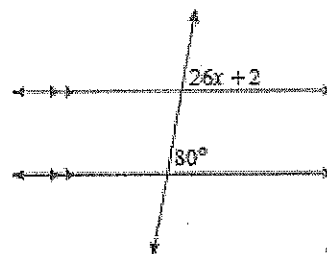
$x = 3$

25. Find the value of x and y.

5y − 10

3x + 7

65°
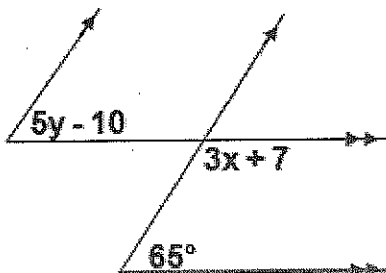
$3x + 7 + 65 = 180$

$3x + 72 = 180$

$3x = 108$

$x = 36$

26. If △ABC ≅ △DEF,

(a) **Name all the corresponding angles:**

∠A ≅ ∠D

∠B ≅ ∠E

∠C ≅ ∠F

(b) **Name all the corresponding sides:**

$\overline{AB} ≅ \overline{DE}$

$\overline{BC} ≅ \overline{EF}$

$\overline{AC} ≅ \overline{DF}$

27.

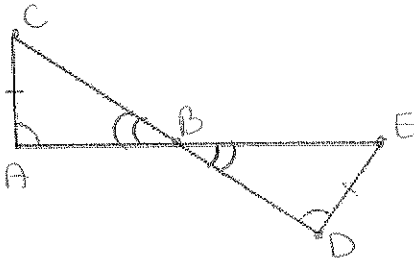(A) If △TGS ≅ △KEL, which angle in △KEL corresponds to ∠T?

∠K

(B) If △TGS ≅ △KEL, which angle in △TGS corresponds to $\overline{EK}$?

$\overline{GT}$

28.

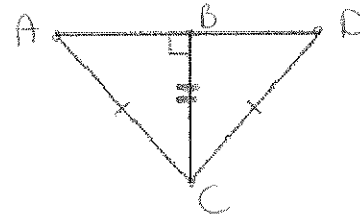
(a) What theorem or postulate proves that the triangles are congruent?

Circle one: SAS   SSS   (AAS)   ASA   HL

(b) Write a congruence statement

△ABC ≅ △DBE

29.

(a) What theorem or postulate proves that the triangles are congruent?

Circle one: SAS   SSS   AAS   ASA   (HL)

(b) Write a congruence statement

△ABC ≅ △DBC

30.

(a) What theorem or postulate proves that the triangles are congruent?

Circle one: SAS   (SSS)   AAS   ASA   HL

(b) Write a congruence statement

△ABC ≅ △EFD

31.

(a) What theorem or postulate proves that the triangles are congruent?

Circle one: (SAS)   SSS   AAS   ASA   HL

(b) Write a congruence statement

△ABC ≅ △DEC

32.

(a) What theorem or postulate proves that the triangles are congruent?

Circle one: SAS   SSS   AAS   (ASA)   HL

(b) Write a congruence statement.

$\triangle ABC \cong \triangle DCB$
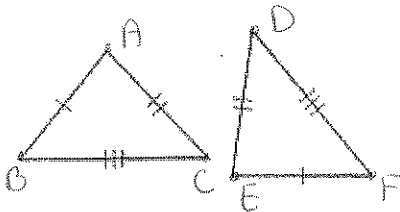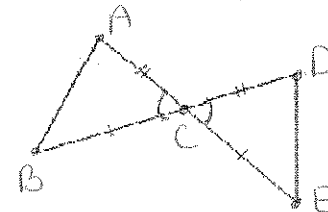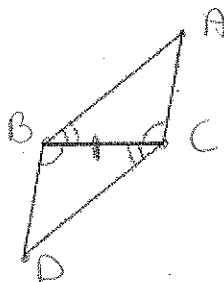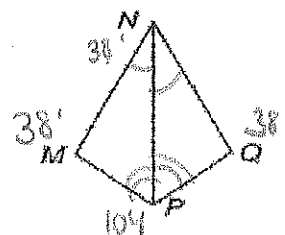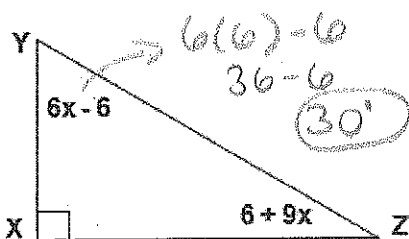
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33. Quadrilateral MNQP is made of two congruent triangles. NP bisects $\angle N$ and $\angle P$. In the quadrilateral, $m\angle N = 38°$ and $m\angle P = 104°$.

What is the measure of $\angle Q$?

$180 - 104 - 38 =$

$\boxed{38°}$

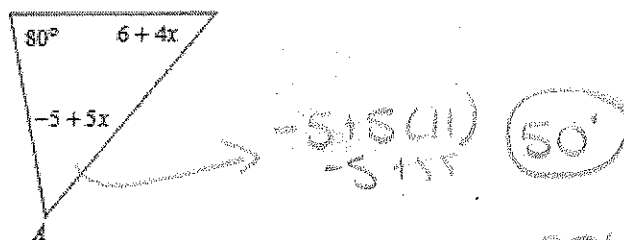**34.** Triangle XYZ is a right triangle. Find $m\angle Y$.

$6(6) - 6$
$36 - 6$
$\boxed{30°}$

$6x - 6 + 90 + 6 + 9x = 180$

$15x + 90 = 180$

$15x = 90$

$x = 6$

---

35. $m < A =$

$-5 + 5(11)$
$-5 + 55$
$\boxed{50°}$

$80 + -5 + 5x + 6 + 4x = 180$

$9x + 81 = 180$

$9x = 99$

$x = 11$

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36. Find $m\angle S$.

$5(12)$
$\boxed{60°}$
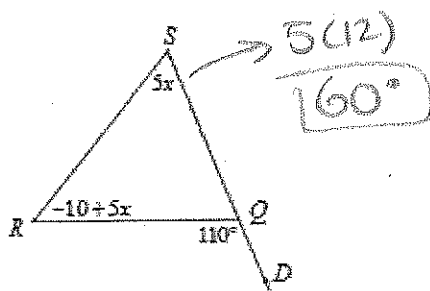
$5x + -10 + 5x = 110$

$10x - 10 = 110$
$\quad +10 \quad +10$

$\dfrac{10x}{10} = \dfrac{120}{10} \qquad x = 12$

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37. Find $m\angle C$.

$5(6) + 10$
$30 + 10$
$\boxed{40°}$
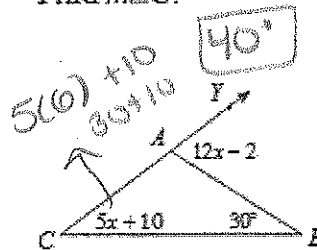
$5x + 10 + 30 = 12x - 2$

$5x + 40 = 12x - 2$
$-5x \qquad\qquad -5x$

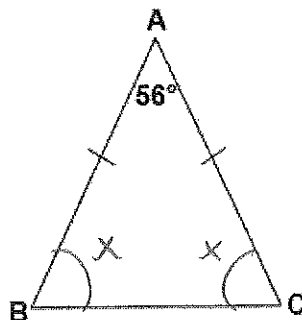$40 = 7x - 2$
$+2 \qquad +2$

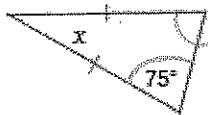$\dfrac{42}{7} = \dfrac{7x}{7}$

$6 = x$

38. Find the value of y.

P ∠65° Q 5y°
45°
45° 65°
R   S
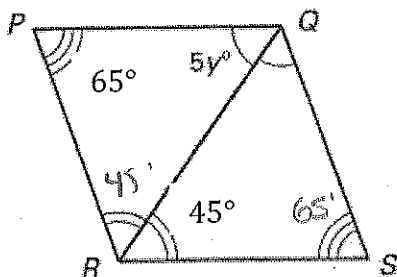
$$45 + 65 + 5y = 180°$$
$$110 + 5y = 180$$
$$-110 \qquad -110$$
$$5y = 70$$
$$\boxed{y = 14}$$

39. In the triangle, $m\angle B = \underline{62}°$

A
56°
x   x
B   C

$$x + x + 56 = 180$$
$$2x + 56 = 180$$
$$-56 \qquad -56$$
$$\frac{2x}{2} = \frac{124}{2}$$
$$x = 62$$

40. Find the value of x.

x
75°

$$x + 75 + 75 = 180$$
$$x + 150 = 180$$
$$-150 \quad -150$$
$$\boxed{x = 30°}$$

41. (a) Find the value of x.

9x + 4
x + 7
7x + 8
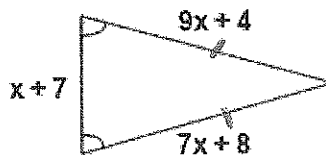
$$9x + 4 = 7x + 8$$
$$-7x \qquad -7x$$
$$2x + 4 = 8$$
$$2x = 4$$
$$\boxed{x = 2}$$

(b) Find the perimeter of the triangle.

$$9x + 4 + x + 7 + 7x + 8 = \text{perimeter}$$
$$9(2) + 4 + (2) + 7 + 7(2) + 8 = \text{perimeter}$$
$$\boxed{53}$$

42. Find the value of x and y.
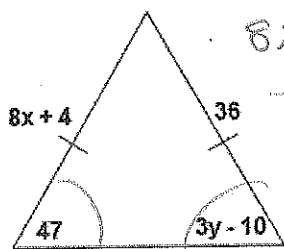
8x + 4   36
47   3y - 10

$$8x + 4 = 36$$
$$-4 \quad -4$$
$$8x = 32$$
$$\boxed{x = 4}$$

$$3y - 10 = 47$$
$$+10 \quad +10$$
$$\frac{3y}{3} = \frac{57}{3}$$
$$\boxed{y = 19}$$

43. Find the value of x and y.

121°
57°
y
x
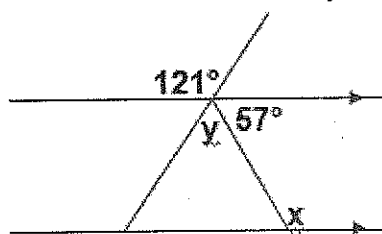
$$y + 57 = 121$$
$$-57 \quad -57$$
$$\boxed{y = 64}$$

$$x + 57 = 180$$
$$-57 \quad -57$$
$$x = 123°$$

44. $m < 1 = 60°$ and $m < 2 = 70°$

$180 - 40$

140

$\overline{2}$

45. Find the value of x and y.
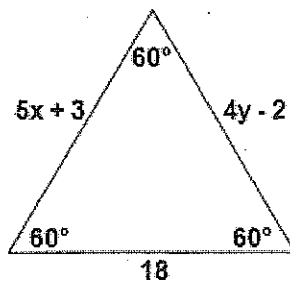
$5x + 3 = 18$
$\quad -3 \quad -3$
$\overline{5x = 15}$
$\quad \overline{5}$
$\boxed{X = 3}$

$4y - 2 = 18$
$\quad +2 \quad +2$
$\overline{4y = 20}$
$\quad \overline{4} \quad \overline{4}$
$\boxed{Y = 5}$

---

46. Find the value of x.

$X + 75 + 75 = 180°$
$X + 150 = 180°$ $\quad$ $\boxed{X = 30°}$

47. Find $m < A$.

$-7 + 39$
$\boxed{32°}$

$x + 39 + 65 + x + 90 = 180$
$2x + 194 = 180$
$\quad -194 \quad -194$
$\overline{2x = -14}$
$\overline{2} \quad \overline{2}$
$X = -7$

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48. Simplify.

(A) $\sqrt{12}$

$\boxed{\sqrt{4} \cdot \sqrt{3}}$
$\boxed{2\sqrt{3}}$
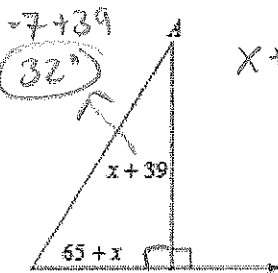
(B) $8\sqrt{200}$

$8 \cdot \sqrt{100} \cdot \sqrt{2}$
$8 \cdot 10\sqrt{2}$
$\boxed{80\sqrt{2}}$

(C) $5 \cdot 2\sqrt{8}$

$5 \cdot 2 \cdot \sqrt{4} \cdot \sqrt{2}$
$5 \cdot 2 \cdot 2 \cdot \sqrt{2}$
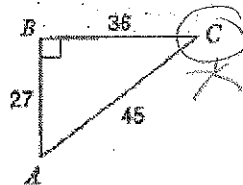$\boxed{20\sqrt{2}}$

(D) $\dfrac{5}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}}$

$\boxed{\dfrac{5\sqrt{3}}{3}}$
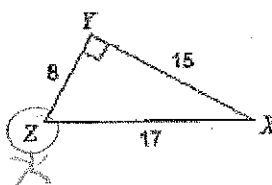
49. Find the value of each trigonometric ratio.

(A) $\sin C$

$\dfrac{27}{45} = \boxed{\dfrac{3}{5}}$
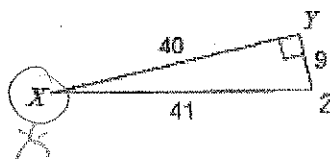
(B) $\cos Z$
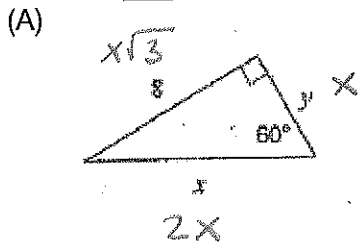
$\boxed{\dfrac{8}{17}}$

(C) $\tan X$

$\boxed{\dfrac{9}{40}}$
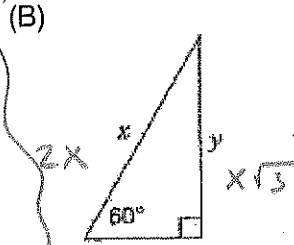
x $x\sqrt{3}$ $2x$
30 - 60 - 90

x x $x\sqrt{2}$
45 - 45 - 90

50. Use Special Right Triangles to solve the following problems. Answers should be in simplest radical form.

(A)

$x\sqrt{3}$

8 y x

$60°$

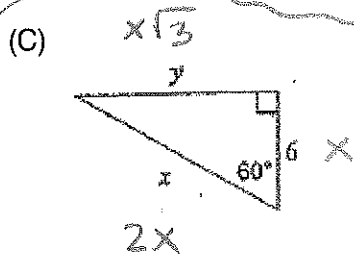$2x$

$\dfrac{8}{\sqrt{3}} = \dfrac{x\sqrt{3}}{\sqrt{3}}$

$\dfrac{8}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = x$

$y = \dfrac{8\sqrt{3}}{3}$ $x = \dfrac{16\sqrt{3}}{3}$

(B)

x y $x\sqrt{3}$

$2x$

$60°$

2

$\boxed{x = 4 \\ y = 2\sqrt{3}}$

(C)

$x\sqrt{3}$

y

$60°$ 6 x

x

$2x$

$\boxed{x = 12 \\ y = 6\sqrt{3}}$

(D)

$x\sqrt{2}$

a

$45°$

$2\sqrt{2}$ b x

x

$\boxed{b = 2\sqrt{2}}$

$a = 2\sqrt{2} \cdot \sqrt{2}$

$\boxed{4}$

(E)

$x\sqrt{2}$

u v x

$45°$

10

x

$\boxed{v = 10 \\ u = 10\sqrt{2}}$

(F)

$x\sqrt{2}$

u

4 x

$45°$

v

x
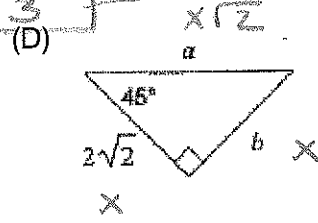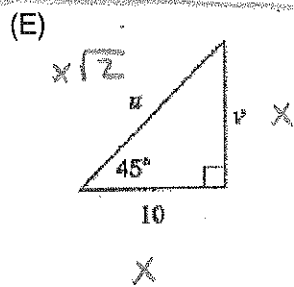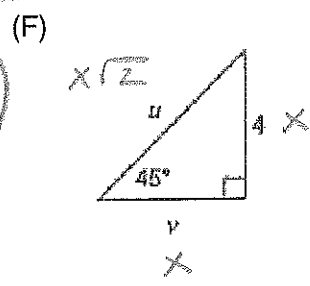
$\boxed{v = 4 \\ u = 4\sqrt{2}}$

51. Use SOH-CAH-TOA to find the missing side or angle. Round all answers to the nearest tenth.

(A)

o

x

18 $24°$

h

$\sin 24 = \dfrac{x}{18}$

Calc: $18\sin 24$

$\boxed{7.3}$

(B)

h

24

$?$

22

a
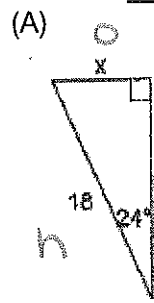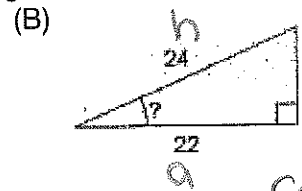
$\cos X = \dfrac{22}{24}$

Calc: $\cos^{-1}(22/24)$

$\boxed{23.6°}$

(C)

h

13

$?$

12

o
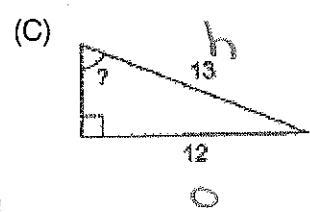
$\sin X = \dfrac{12}{13}$

Calc: $\sin^{-1}(12/13)$

$\boxed{67.4°}$

(D)

A

x $30°$ 13 h
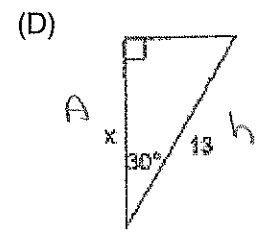
$\cos 30 = \dfrac{x}{13}$

Calc:

$13\cos 30$

$\boxed{11.3}$

(E)
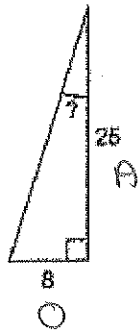
$\tan X = \dfrac{8}{25}$

Calc: $\tan^{-1}(8/25)$

$\boxed{17.7°}$

(F)
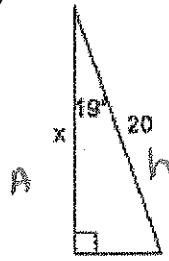
$\cos 19 = \dfrac{x}{20}$

Calc: $20\cos 19$

$\boxed{18.9}$

(G)

$\sin 18 = \dfrac{x}{15}$

Calc: $15\sin 18$

$\boxed{4.6}$

(H)
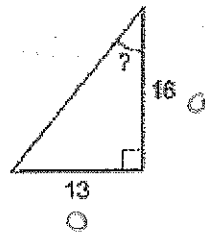
$\tan X = \dfrac{13}{16}$

Calc: $\tan^{-1}(13/16)$

$\boxed{39.1°}$

(I)

$\sin X = \dfrac{3}{6}$

Calc: $\sin^{-1}(3/6)$

$\boxed{30°}$

(J)
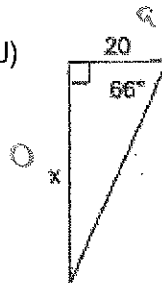
$\tan 66 = \dfrac{x}{20}$

Calc: $20\tan 66$

$\boxed{44.9}$

52. A spectator in the stands spots the team mascot on the field at an angle of depression of $46°$. If the spectator is sitting 35 feet above the ground, what is the horizontal distance between the spectator and the mascot?
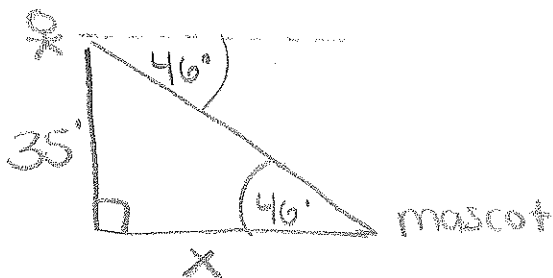
$\tan 46 = \dfrac{35}{x}$

Calc: $\dfrac{35}{\tan 46}$

$\boxed{33.8\ ft}$

53. The angle of elevation from a soccer ball on the ground to the rop of the goal is 34°. If the goal is 8 feet tall, what is the distance from the ball to the goal?
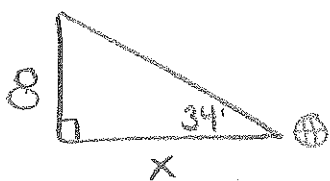
$\tan 34 = \frac{8}{x}$

Calc: $\frac{8}{\tan 34}$

$\boxed{11.9 \, ft}$

54. Jada is standing 10 feet from the base of a tree and spots a nest sitting on a branch. The angle of elevation from the ground where she is standing to the nest is 55°. Find the height of the nest.
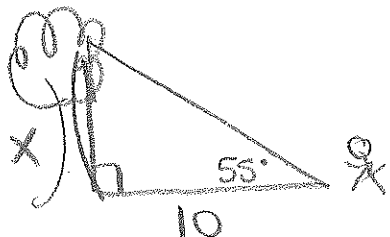
$\tan 55 = \frac{x}{10}$

Calc: $10 \tan 55$

$\boxed{14.3 \, ft}$

55. A surfer is riding a 7 foot wave. The angle of depression from the surfer to the shorline is 10°. What is the distance from the surfer to the shoreline?
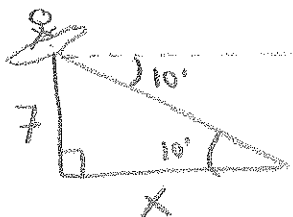
$\tan 10 = \frac{7}{x}$

Calc: $\frac{7}{\tan 10}$

$\boxed{39.7 \, ft}$

56. Given the equation $y = \frac{3}{4}x - 10$

(a) What would be the slope of a parallel line to the given equation?

$\frac{3}{4}$

(b) What would be the slope of a perpendicular line to the given equation?

$-\frac{4}{3}$

57. What is the slope of each line.

(a)

(b)

0

undefined
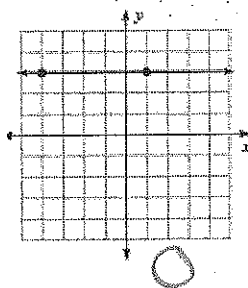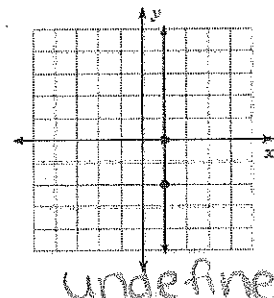
**58.** Find the equation of the line through the point (-2, 3) and has a slope of $-\frac{1}{2}$.

x y   m

$y = mx + b$

$3 = -\frac{1}{2}(-2) + b$

$3 = 1 + b$

$\frac{-1 \quad -1}{2 = b}$

$\boxed{y = -\frac{1}{2}x + 2}$

59. Find the equation of the line through the point (-3, 5) and has a slope of -3.

x y   m

$y = mx + b$

$5 = -3(-3) + b$

$5 = 9 + b$

$\frac{-9 \quad -9}{-4 = b}$

$\boxed{y = -3x - 4}$

Distance Formula = $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$	Slope = $\frac{y_1 - y_2}{x_1 - x_2}$	Midpoint = $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Find each of the following given the points: A (6, 6)   B (3, 9)   C (-6, 1)   D (9, 11)

60.)   Distance between A and C. $(6, 6)$ $(-6, 1)$
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad x_1 \ y_1 \quad x_2 \ y_2$

$\sqrt{(6 - -6)^2 + (6 - 1)^2}$

$\sqrt{(12)^2 + (5)^2}$

$\sqrt{144 + 25}$ $\boxed{13}$

$\sqrt{169}$

61.)   Slope of $\overleftrightarrow{AB}$. $(6, 6)$ $(3, 9)$
$\quad\quad\quad\quad\quad\quad\quad x_1 \ y_1 \quad x_2 \ y_2$

$\dfrac{6 - 9}{6 - 3} = \dfrac{-3}{3} = \boxed{-1}$

62.)   Slope of the line perpendicular to $\overleftrightarrow{AD}$ $(6, 6)$ $(9, 11)$
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad x_1 \ y_1 \quad x_2 \ y_2$

First find slope.

$\dfrac{11 - 6}{9 - 6} = \dfrac{5}{3}$

Now find perpendicular slope.

$\boxed{\dfrac{-3}{5}}$

63.)   Find the coordinates of the midpoint of $\overline{BC}$ $(3, 9)$ $(-6, 1)$
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad x_1 \ y_1 \quad x_2 \ y_2$

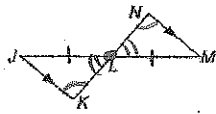$\left(\dfrac{3 + (-6)}{2}, \dfrac{9 + 1}{2}\right)$

$\left(\dfrac{3}{2}, \dfrac{10}{2}\right)$

$\boxed{(1.5, 5)}$

64. 2.

Given: L is the midpoint of $\overline{JM}$.
$\overline{JK} \parallel \overline{NM}$
Prove: $\triangle JKL \cong \triangle MNL$
Proof:

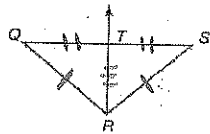| Statements	Reasons
1. L is the midpoint of $\overline{JM}$.	1. Given
2. $\overline{JL} \cong \overline{ML}$	2. Definition of midpoint
3. $\overline{JK} \parallel \overline{MN}$	3. Given
4. $\angle JKL \cong \angle MNL$	4. Alt. int. $\angle$
5. $\angle JLK \cong \angle MLN$	5. Vertical angles
6. $\triangle JKL \cong \triangle MNL$	6. AAS

65.

Given: $\overline{DA} \parallel \overline{YN}$
$\overline{DA} \cong \overline{YN}$
Prove: $\angle NDY \cong \angle DNA$
Proof:

Statements	Reasons
1. $\overline{DA} \parallel \overline{YN}$	1. Given
2. $\angle ADN \cong \angle YND$	2. Alt. int. $\angle$ are $\cong$.
3. $\overline{DA} \cong \overline{YN}$	3. Given
4. $\overline{DN} \cong \overline{DN}$	4. Reflexive Property
5. $\triangle NDY \cong \triangle DNA$	5. SAS
6. $\angle NDY \cong \angle DNA$	6. CPCTC

66.

Given: $\triangle QRS$ is isosceles with $\overline{QR} \cong \overline{SR}$.
$\overline{RT}$ bisects $\overline{QS}$ at point T.
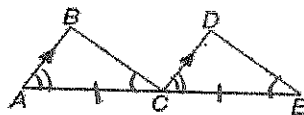Prove: $\triangle QRT \cong \triangle SRT$

Statement	reason
1. $\triangle QRS$ is isosceles with $\overline{QR} \cong \overline{SR}$	1. Given
2. $\overline{RT}$ bisects $\overline{QS}$ at point T	2. Given
3. $\overline{QT} \cong \overline{ST}$	3. def. of bisector
4. $\overline{TR} \cong \overline{TR}$	4. reflexive prop.
5. $\triangle QRT \cong \triangle SRT$	5. SSS

67.

Given: $AB = CD$, $\overline{AB} \parallel \overline{CD}$
Prove: $\triangle ACD \cong \triangle CAB$
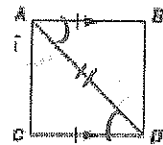
Statement	Reason
1. $\overline{AB} \cong \overline{CD}$	1. Given
2. $\overline{AB} \parallel \overline{CD}$	2. Given
3. $\angle BAD \cong \angle CDA$	3. Alt. int. $\angle$
4. $\overline{AD} \cong \overline{AD}$	4. reflexive prop.
5. $\triangle ACD \cong \triangle CAB$	5. SAS

68.

Given: $\overline{CD}$ bisects $\overline{AE}$, $\overline{AB} \parallel \overline{CD}$
$\angle E \cong \angle BCA$
Prove: $\triangle ABC \cong \triangle CDE$

Statement	Reason
1. $\overline{CD}$ bisects $\overline{AE}$	1. Given
2. $\overline{AB} \parallel \overline{CD}$	2. Given
3. $\angle E \cong \angle BCA$	3. Given
4. $\overline{AC} \cong \overline{EC}$	4. def of bisector
5. $\angle BAC \cong \angle DCE$	5. Corresponding $\angle$'s
6. $\triangle ABC \cong \triangle CDE$	6. ASA

69.

Given: $\angle Z \cong \angle C$
$\overline{AK}$ bisects $\angle ZKC$.
Prove: $\triangle AKZ \cong \triangle AKC$

Statement	Reason
1. $\angle Z \cong \angle C$	1. Given
2. $\overline{AK}$ bisects $\angle ZKC$	2. Given
3. $\angle AKZ \cong \angle AKC$	3. def of bisector
4. $\overline{AK} \cong \overline{AK}$	4. reflexive prop.
5. $\triangle AKZ \cong \triangle AKC$	5. AAS