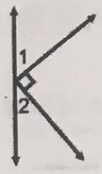
Name KEY Date _____ Period _____

Geometry with Trigonometry Midterm Review 2018

UNIT 1

1. Use the diagram to the right. $\angle 1$ and $\angle 2$ are _____ angles.



A) complementary B) supplementary C) congruent

D) vertical angles E) a linear pair

2. If $\angle P$ and $\angle R$ are complementary (sum of 90°) and $m\angle P = 46°$, find $m\angle R$.

$46 + x = 90$

$x = 44$

$m\angle R = 44°$

3. Use the transitive property of congruence to complete the statement:

If $\overline{AB} \cong \overline{XY}$ and $\overline{XY} \cong \overline{MN}$, then $\overline{AB} \cong \overline{MN}$.

For #4 -5, find the coordinates of the midpoint. $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

4. $C(2, 9)$, $D(-2, -1)$

$\left(\frac{2+(-2)}{2}, \frac{9+(-1)}{2}\right)$

$\left(\frac{0}{2}, \frac{8}{2}\right) \rightarrow (0, 4)$

5. $E(-3, -3)$, $F(9, -15)$

$\left(\frac{-3+9}{2}, \frac{-3+(-15)}{2}\right)$

$\left(\frac{6}{2}, \frac{-18}{2}\right) \rightarrow (3, -9)$

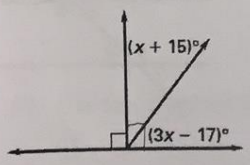
Complete the following sentences.

6. The intersection of two lines is a point.

7. The intersection of two planes is a line.

8. The intersection of a line and a plane is a point.

9. Find the value of x.



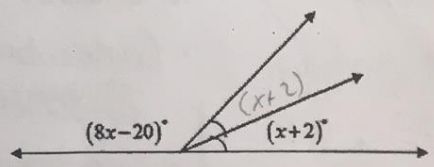
$x + 15 + 3x - 17 = 90$

$4x - 2 = 90$

$4x = 92$

$x = 23$

10. Find the value of x.



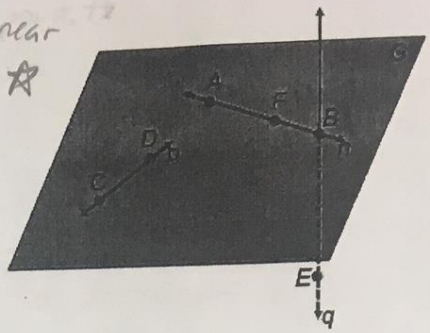
$8x - 20 + x + 2 + x + 2 = 180$

$10x - 16 = 180$

$10x = 196$

$x = 19.6$

Use the diagram to the right to answer #11-14.



11. What is another name for plane G? ★Use 3 non-collinear points on plane★

Plane CAE

12. What is another name for line p?

$\overleftrightarrow{CD}$

13. Name the intersection of lines n and q.

B

14. Name the opposite ray of $\overrightarrow{FB}$.

$\overrightarrow{FA}$

UNIT 2

15. a) **Find the slope of line parallel to the line passing through the given points.**
    b) **Find the slope of line perpendicular to the line passing through the given points.**

a. (1, 1) and (4, 10)

$m = \frac{10-1}{4-1} = \frac{9}{3} = 3$

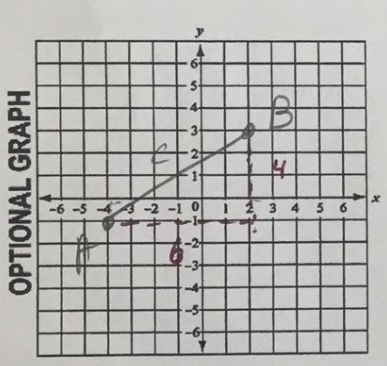
|| slope = 3 b) ⊥ slope = $-\frac{1}{3}$

b. (2, 5) and (2, -7).

$m = \frac{-7-5}{2-2} = \frac{-12}{0}$ = undefined

a) || slope = undefined b) ⊥ slope = 0

16. **Find the distance of $\overline{AB}$ when $A(-4, -1)$ and $B(2, 3)$. Leave your answer in simplest radical form, if necessary.**



Pythagorean Theorem

$4^2 + 6^2 = c^2$

$16 + 36 = c^2$

$52 = c^2$

$\sqrt{52} = c$

$\sqrt{4}\sqrt{13}$

$c = 2\sqrt{13}$

or

Distance Formula

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$= \sqrt{(2-(-4))^2 + (3-(-1))^2}$

$= \sqrt{(6)^2 + (4)^2}$

$= \sqrt{36 + 16}$

$= \sqrt{52} = 2\sqrt{13}$

Use the diagram to determine whether the given angles are <u>alternate interior, alternate exterior, corresponding, or consecutive interior</u> angles. Then state whether they are <u>congruent or supplementary</u>.

17. ∠2 and ∠6

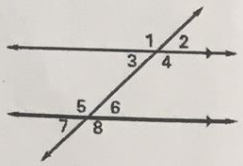
- Corresponding
- ≅

18. ∠3 and ∠5

- Consecutive Interior
- Supplementary

19. ∠4 and ∠5

- Alternate Interior
- ≅



Decide whether the lines are parallel, perpendicular or neither.

20. $y = 4x - 3$ $m = 4$

$y = 2x - 3$ $m = 2$

Neither

21. $y = 2x + 5$ $m = 2$

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

Perpendicular (opposite reciprocal slope)

22. $y = 5x + 7$ $m = 5$

$y = 5x - 7$ $m = 5$

Parallel (Same slope)

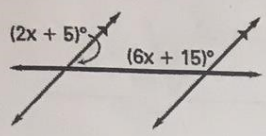
23. $y = -2x + 4$ $m = -2$

$y = -\frac{1}{2}x - 8$ $m = -\frac{1}{2}$

Neither

Solve for x.

24.



$2x+5+6x+15=180$

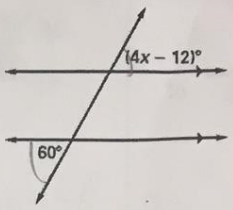
$8x+20=180$

$8x=160$

$\boxed{x=20}$

Consecutive Int ∠s are supp

25.



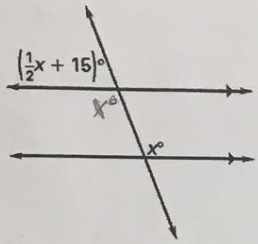
$4x-12=60$

$4x=72$

$\boxed{x=18}$

Alt exterior ∠s are ≅

26.



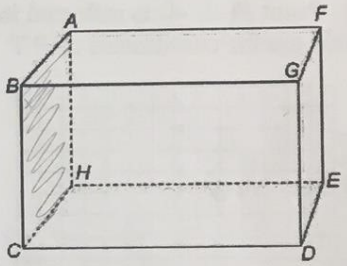
$\frac{1}{2}x+15+x=180$

$\frac{3}{2}x+15=180$

$\frac{2}{3}\left(\frac{3}{2}x\right)=(165)\frac{2}{3}$

$\boxed{x=110}$

Use the diagram of the rectangular prism below to complete each statement.

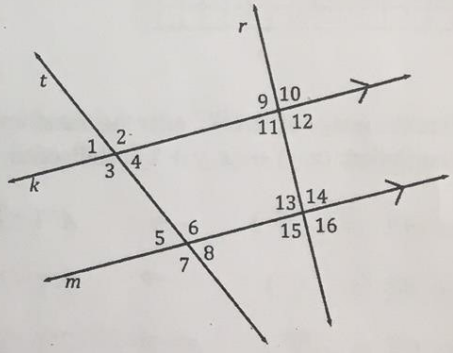


27. A segment that appears to be parallel to $\overline{FE}$: $\overline{GD}$, $\overline{AH}$, $\overline{BC}$

28. A segment that appears to be perpendicular to $\overline{CD}$: $\overline{BC}$, $\overline{GD}$, $\overline{DE}$

29. A plane that appears to be parallel to plane ABC: Plane FGD

Classify the relationship between each pair of angles as *alternate interior*, *alternate exterior*, *corresponding*, or *consecutive interior angles*.



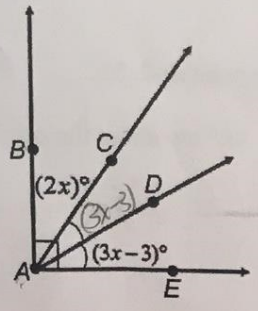
30. ∠10 and ∠14 are Corresponding angles.

31. ∠2 and ∠7 are Alternate Exterior angles.

32. ∠4 and ∠6 are Consecutive Interior angles.

33. ∠11 and ∠14 are Alternate Interior angles.

34. **Use the diagram to the right.** Find the value of x, $m\angle CAD$, and $m\angle BAD$:



$2x+3x-3+3x-3=90$

$8x-6=90$

$8x=96$ $\boxed{x=12}$

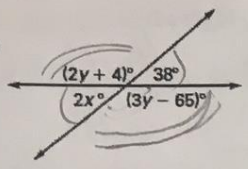
$x=12$ $m\angle CAD=33°$ $m\angle BAD=57°$

$3(12)-3=33$ $2(12)+3(12)-3=$

$24+36-3=57$

Find the value of x and y.

35.



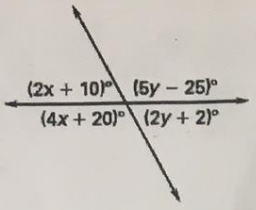
$2x = 38$

$\boxed{x = 19}$

$2y + 4 = 3y - 65$

$\boxed{69 = y}$

36.



$2x + 10 + 4x + 20 = 180$

$6x + 30 = 180$

$6x = 150$

$\boxed{x = 25}$

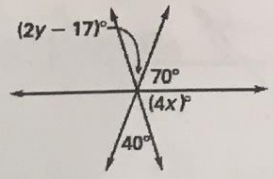
$5y - 25 + 2y + 2 = 180$

$7y - 23 = 180$

$7y = 203$

$\boxed{y = 29}$

37.



$40 = 2y - 17$

$57 = 2y$

$\boxed{y = 28.5}$

$40 + 4x + 70 = 180$

$4x + 110 = 180$

$4x = 70$

$\boxed{x = 17.5}$