CHAPTER 1

Chapter Review

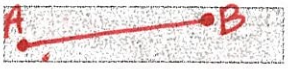
KEY

Know It! Note

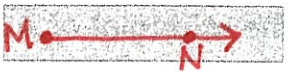
1-1 Understanding Points, Lines, and Planes

Draw and label each of the following.

1. a segment containing the points *A* and *B*



2. a ray with endpoint *M* that passes through *N*



3. a plane containing a line segment with endpoints *X* and *Y*

4. three coplanar lines intersecting in one point.

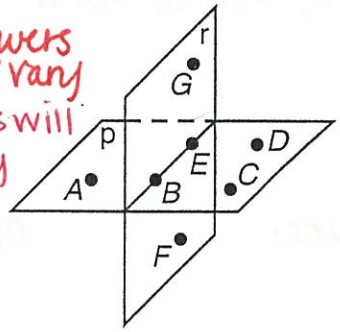
Name each of the following.

5. three coplanar points — A, C, D — answers will vary

6. a line contained in neither plane — $\overleftrightarrow{AF}$ — answers will vary

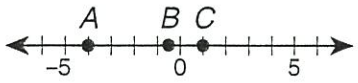
7. a segment contained in plane *R* — $\overline{BE}$

8. a line contained in both planes — $\overleftrightarrow{BE}$



1-2 Measuring and Constructing Segments

Find the length of each segment.

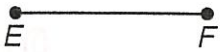


9. $\overline{AB}$ — 3.5

10. $\overline{BC}$ — 1.5

11. $\overline{AC}$ — 5

12. Sketch, draw, and construct a segment congruent to $\overline{EF}$.

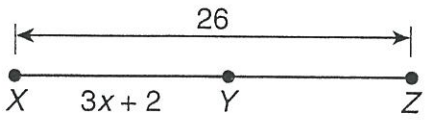


A ll B x C

13. *B* is between *A* and *C*. *AC* = 24 and *BC* = 11. Find *AB*. AB=13

24

14. *Y* is between *X* and *Z*. Find ~~*XY*~~. Write an expression for YZ.



24-3x

26-(3x+2)
26-3x-2
24-3x

***M* is the midpoint of $\overline{AB}$. *AM* = 9*x* − 6, and *BM* = 6x + 27.**

15. Find *x*.

11

16. Find *AM*.

93

9(11)-6=99-6

17. Find *BM*.

93

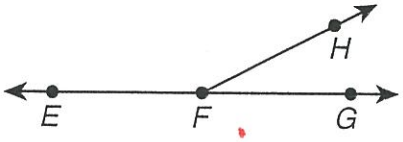
6(11)+27
66+27

9x-6 = 6x+27
9x = 6x+33
3x = 33
x = 11

1-3 Measuring and Constructing Angles

18. Name all the angles in the diagram.

∠EFH, ∠HFG, ∠EFG



Classify each angle by its measure.

19. m∠*XYZ* = 89°

acute

20. m∠*PQR* = 150°

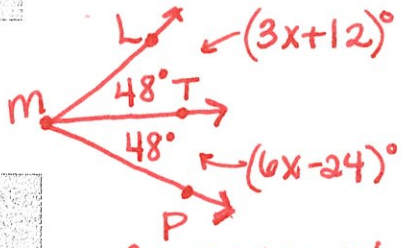
obtuse

21. m∠*BRZ* = 90°

right

22. $\overrightarrow{MT}$ bisects ∠*LMP*, m∠*LMT*, = (3*x* + 12)°, and m∠*TMP*, = (6*x* − 24)°. Find m∠*LMP*.

96°



3x+12 = 6x-24
12 = 3x-24
36 = 3x
x = 12

~~23~~. Use a protractor and a straightedge to draw an 80° angle. Then bisect the angle.

1-4 Pairs of Angles

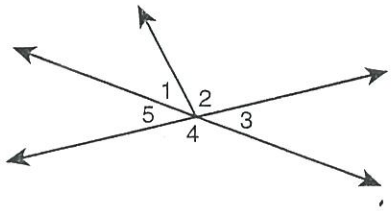
Tell whether the angles are only adjacent, adjacent and form a linear pair, or not adjacent.

24. ∠2 and ∠3

only adjacent

25. ∠3 and ∠4

adjacent linear pair



26. $\angle 3$ and $\angle 1$ neither

If $m\angle A = (7x - 12)°$, find the measure of each of the following.

27. supplement of $\angle A$

$(192-7x)°$

$180-(7x-12)=180-7x+12$

28. complement of $\angle A$

$(102-7x)°$

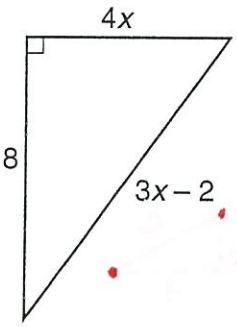
$90-(7x-12)=90-7x+12$

$102-7x$

1-5 Using Formulas in Geometry

Find the perimeter and area of each figure.

29.



$P = 4x+2x+8+3x-2$

$P = 9x+6$

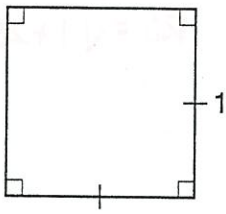
$A = \frac{1}{2}(4x)(2x+8)$

$A = 2x(2x+8)$

$A = 4x^2+16x$

$P = 9x+6$ un.; $A = 4x^2+16x$ un^2

30.

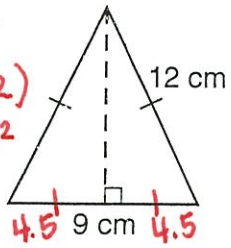


$P = 4(12x) = 48x$

$A = (12x)^2 = 144x^2$

$P = 48x$ un.; $A = 144x^2$ un^2

31.



$(4.5)^2 + b^2 = 12^2$

$20.25 + b^2 = 144$

$b^2 = 123.75$

$b = 11.12$

$A = \frac{1}{2}(4.5)(11.12)$

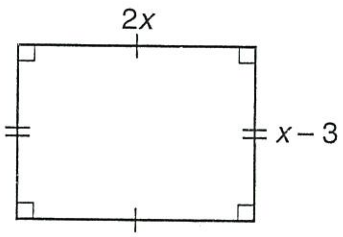
$A = 25.02$ cm^2

$P = 12+12+9$

33 cm

$P = 33$ cm; $A = 50.04$ cm^2

32.



$P = 2(2x)+2(x-3)$

$P = 4x + 2x - 6$

$P = 6x - 6$

$A = 2x(x-3)$

$A = 2x^2 - 6x$

$P = 6x-6$ un; $A = 2x^2-6x$ un^2

33. Find the circumference and area of a circle with radius 9 in. Use the π key on your calculator and round to the nearest tenth.

$A = \pi(9)^2$

$A = 81\pi$

$A = 254.5$ in^2

$C = 2\pi(9)$

$C = 18\pi$

$C = 56.5$ in

$A = 254.5$ in^2; $C = 56.5$ in

1-6 Midpoint and Distance in the Coordinate Plane

34. Find the coordinates of the midpoint of $\overline{AB}$ with endpoints $A(-2, 6)$, and $B(-4, -1)$.

$M = \left(\frac{-2+(-4)}{2}, \frac{6+(-1)}{2}\right) = \left(\frac{-6}{2}, \frac{5}{2}\right) \Rightarrow M = (-3, 2.5)$

$M = (-3, 2.5)$

35. S is the midpoint of $\overline{RT}$, R has coordinates $(-4, -3)$ and S has coordinates $(3, 5)$. Find the coordinates of T.

$(3,5) = \left(\frac{x+(-4)}{2}, \frac{y+(-3)}{2}\right)$

$3 = \frac{x+(-4)}{2}$ $\quad 5 = \frac{y+(-3)}{2}$

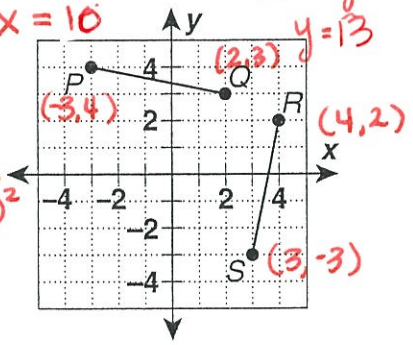
$6 = x+(-4)$ $\quad 10 = y+(-3)$

$x = 10$ $\quad y = 13$

$(10, 13)$

36. Using the distance formula, find PQ and RS to the nearest tenth. Then determine if $\overline{PQ} \cong \overline{RS}$.

$\overline{PQ} \cong \overline{RS}$



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

$PQ = \sqrt{(5)^2+(-1)^2}$

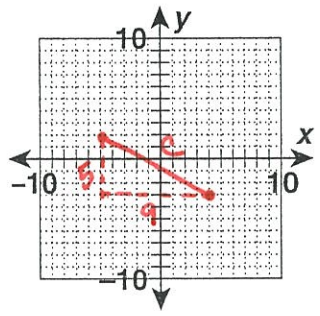
$PQ = \sqrt{25+1} = \sqrt{26}$

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

$RS = \sqrt{(-1)^2+(-5)^2}$

$RS = \sqrt{1+25} = \sqrt{26}$

37. Using the Distance Formula and the Pythagorean Theorem, find the distance, to the nearest tenth, from $M(4, -3)$ to $N(-5, 2)$.



$MN = \sqrt{(4-(-5))^2+(-3-2)^2}$

$MN = \sqrt{(9)^2+(-5)^2}$

$MN = \sqrt{81+25} = \sqrt{106}$

$5^2+9^2=c^2$

$25+81=c^2$

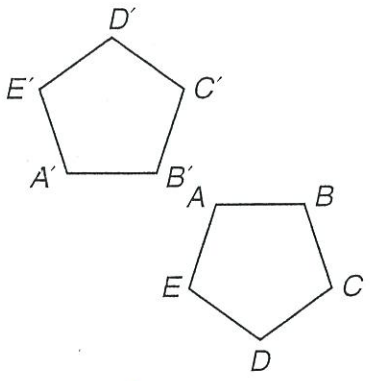
$106=c^2$

$c=\sqrt{106}$

1-7 Transformations in the Coordinate Plane

Identify the transformation. Then use arrow notation to describe the transformation.

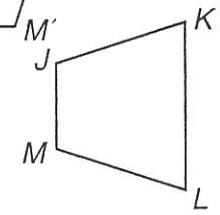
38.



Reflection

$ABCDE \rightarrow A'B'C'D'E'$

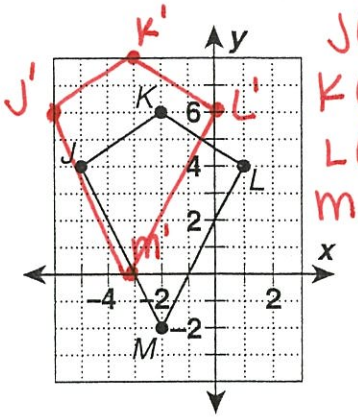
39. K' L' J' M'



Rotation

$JKLM \rightarrow J'K'L'M'$

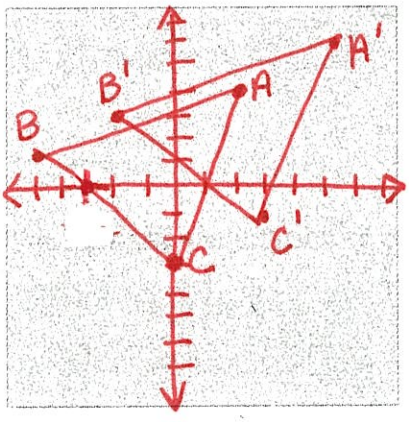
40. Find the coordinates for the image of figure *JKLM* after the translation $(x, y) \rightarrow (x - 1, y + 2)$. Graph the image.



J(-5,4)
K(-2,6)
L(1,4)
m(-2,-2)

J'(-6,6)
K'(-3, 8)
L'(0, 6)
m'(-3,0)

41. A figure has vertices at $A(2, 4)$, $B(-5, 1)$ and $C(0, -3)$. After a transformation, the image of the figure has vertices at $A'(5, 6)$, $B'(-2, 3)$, and $C'(3, -1)$. Graph the preimage and image. Then, identify the transformation.



Translation
$\Delta ABC \rightarrow \Delta A'B'C'$