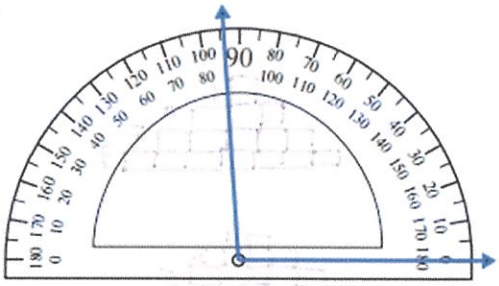
GEOMETRY
Constructions and Review

Name Key
Date_____ Period_____

Use the protractor to determine each angle.

1)



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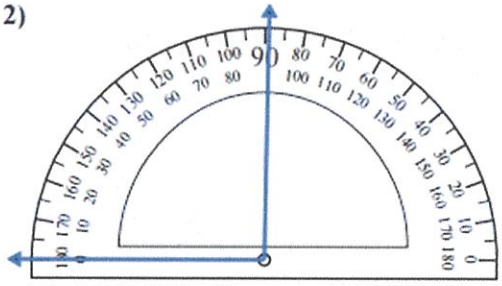

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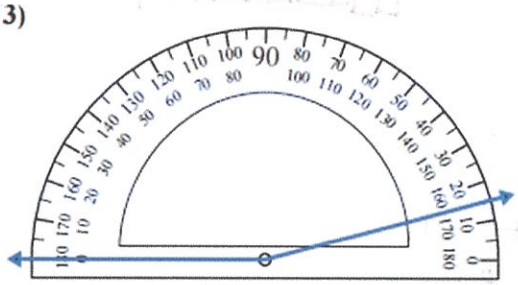

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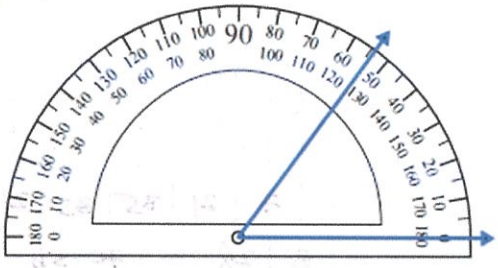

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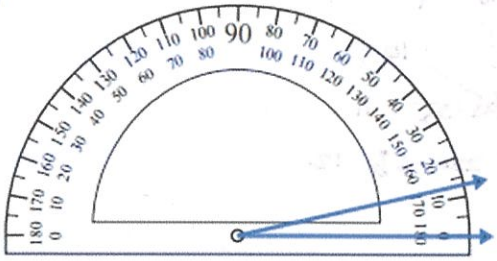

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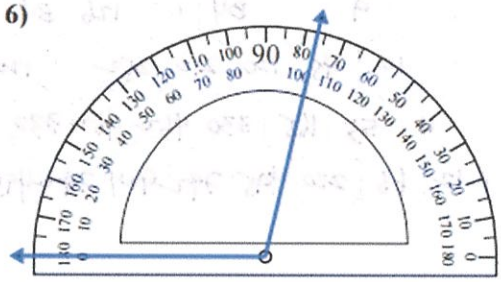

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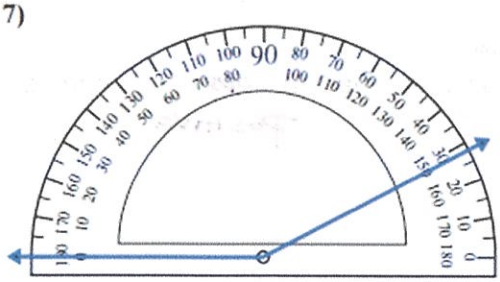

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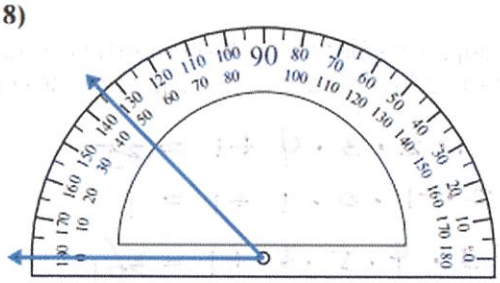

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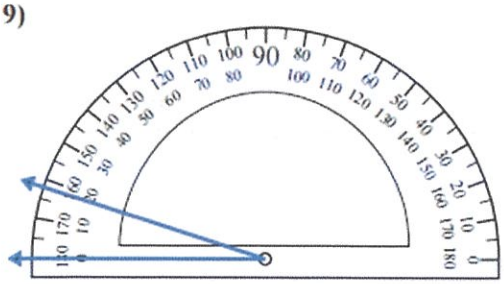

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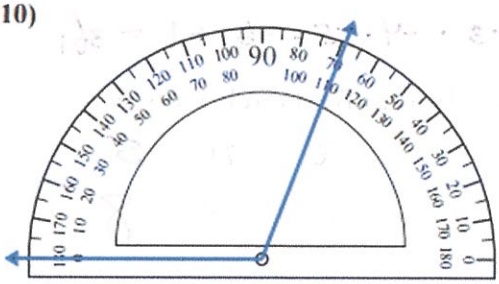
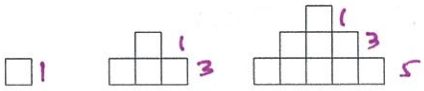


Answers

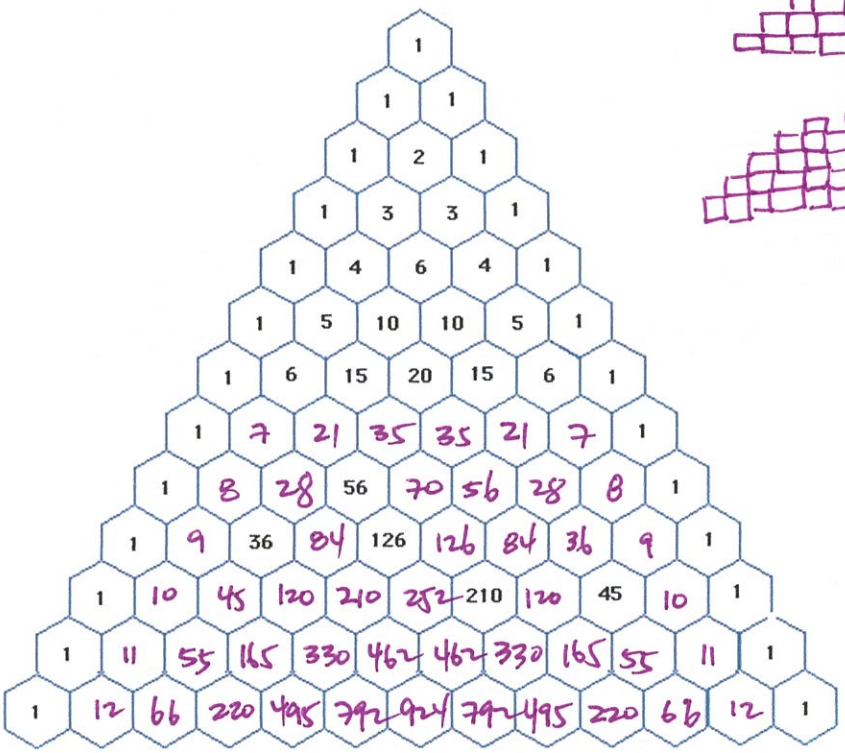
1. 94°
2. 91°
3. 165°
4. 54°
5. 13°
6. 103°
7. 152°
8. 46°
9. 18°
10. 111°

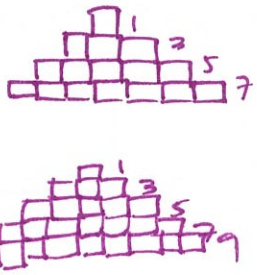
Sketch the next two figures you expect in the pattern.

11.

12. 

13. Find the pattern and fill in the empty spaces.





14. Complete the conjecture based on the pattern you observe.
Conjecture: The product of four consecutive numbers, plus 1, is always a __ODD__ number.
POSITIVE

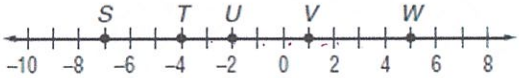
$1 \cdot 2 \cdot 3 \cdot 4 + 1 = 25$

$-2 \cdot -1 \cdot 0 \cdot 1 + 1 = 1$

$3 \cdot 4 \cdot 5 \cdot 6 + 1 = 361$

$-3 \cdot -4 \cdot -5 \cdot -6 + 1 = 361$

Use the number line to find each measure.



15. *VW* 4

16. *TV* 5

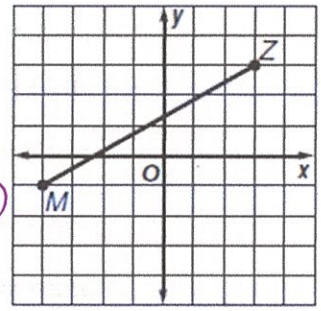
17. *ST* 3

18. *SV* 8

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

Find the distance and the midpoint between the two points.

19.



$x_2\ y_2$ $(3,3)$

$x_1\ y_1$ $(-4,-1)$

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

$D = \sqrt{7^2+4^2}$

$D = \sqrt{49+16}$

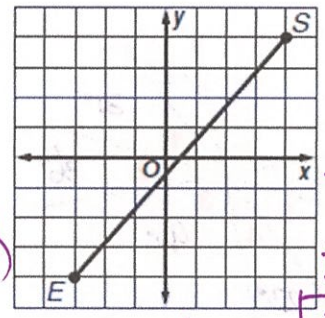
$\boxed{\text{Distance} = \sqrt{65}}$

$\text{Midpoint} = \left(\frac{-4+3}{2}, \frac{-1+3}{2}\right)$

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

$\boxed{\text{Midpoint} = \left(-\frac{1}{2}, 1\right)}$

20.



$x_1\ y_1$ $(4,4)$

$x_1\ y_1$ $(-3,-4)$

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

$D = \sqrt{7^2+8^2}$

$D = \sqrt{49+64}$

$\boxed{D = \sqrt{113}}$

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

$M = \left(\frac{1}{2}, \frac{0}{2}\right)$

$\boxed{M = \left(\frac{1}{2}, 0\right)}$

Find the missing coordinates of the endpoint given the midpoint of *AB*.

21. Midpoint = $(\overset{x}{4}, \overset{y}{3})$ and $B = (\overset{x_1}{5}, \overset{y_1}{8})$

$A = (\overset{x}{4(2)-5}, \overset{y}{3(2)-8})$

$A = (8-5, 6-8)$

$\boxed{A = (3,-2)}$

22. Midpoint = $(\overset{x}{1}, \overset{y}{-2})$ and $B = (\overset{x_1}{-3}, \overset{y_1}{-8})$

$A = (\overset{x}{1(2)-(-3)}, -2(2)-(-8))$

$A = (2+3, -4+8)$

$\boxed{A = (5,4)}$

For #23 – 27, use the figure on the right to classify each of the following angles as acute, right, obtuse, or straight.

23. $\angle UZW$ RIGHT

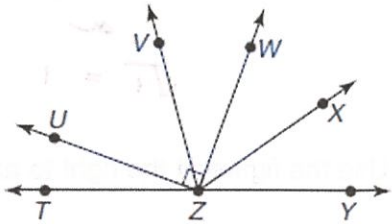
24. $\angle YZW$ ACUTE

25. $\angle TZW$ OBTUSE

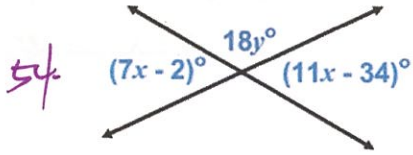
26. $\angle UZT$ ACUTE

27. $\angle TZY$ STRAIGHT

28. $\angle UZX$ OBTUSE



29. In the diagram below, find the values of x and y.



54 $\quad$ 54

VERTICAL ANGLES

$7X-2 = 11X-34$

$32 = 4X$

$\boxed{8 = X}$

PUT $X=8$ BACK INTO ONE OF THE VERTICAL ANGLES TO FIND THE VALUE OF 54.

$18y+54=162$

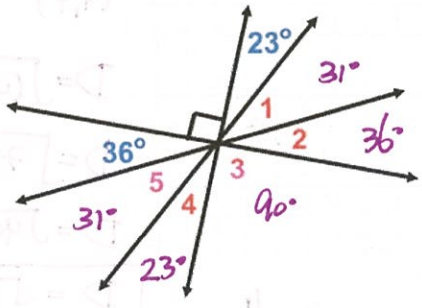
$18y = 126$

$\boxed{Y=7}$

$x =$ 8

$y =$ 7

30. Find $m\angle 1$, $m\angle 2$, $m\angle 3$, $m\angle 4$, and $m\angle 5$.



$m\angle 1 =$ 31°

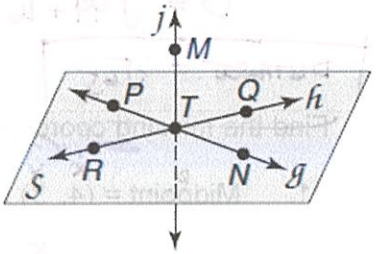
$m\angle 2 =$ 36°

$m\angle 3 =$ 90°

$m\angle 4 =$ 23°

$m\angle 5 =$ 31°

Use the figure at the right for #30 – 34.



31. Name a line that contains both point *T* and point *P*.

LINE g, $\overleftrightarrow{PT}$, $\overleftrightarrow{TN}$, $\overleftrightarrow{PN}$

32. Name a line that intersects the plane containing points *Q*, *P*, and *N*.

LINE j, $\overleftrightarrow{MT}$

33. Name the intersection of line *h* and line *g*.

• T

34. Name a point that is collinear with point *R*.

• T • Q

35. Name the intersection of plane *S* and line *j*.

• T

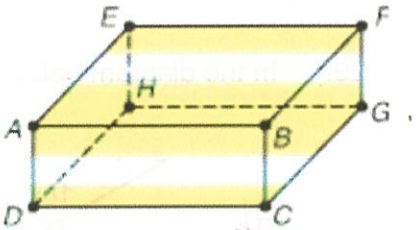
36. Show the conjecture is false by finding a counterexample.
The square root of any number is less than the number.

$\sqrt{0} = 0$

or

$\sqrt{1} = 1$

Use the figure at the right to answer questions 36 – 39.



37. Name a point coplanar with point *E*, point *H*, and point *G*.

• F

38. Name a point noncoplanar with point *A*, point *E*, and point *D*.

ANY POINT BESIDES • H.

39. Name the intersection of plane *FGB* and plane *HGC*.

$\overleftrightarrow{GC}$

40. Name the intersection of plane *AEF* and $\overleftrightarrow{BC}$.

• B