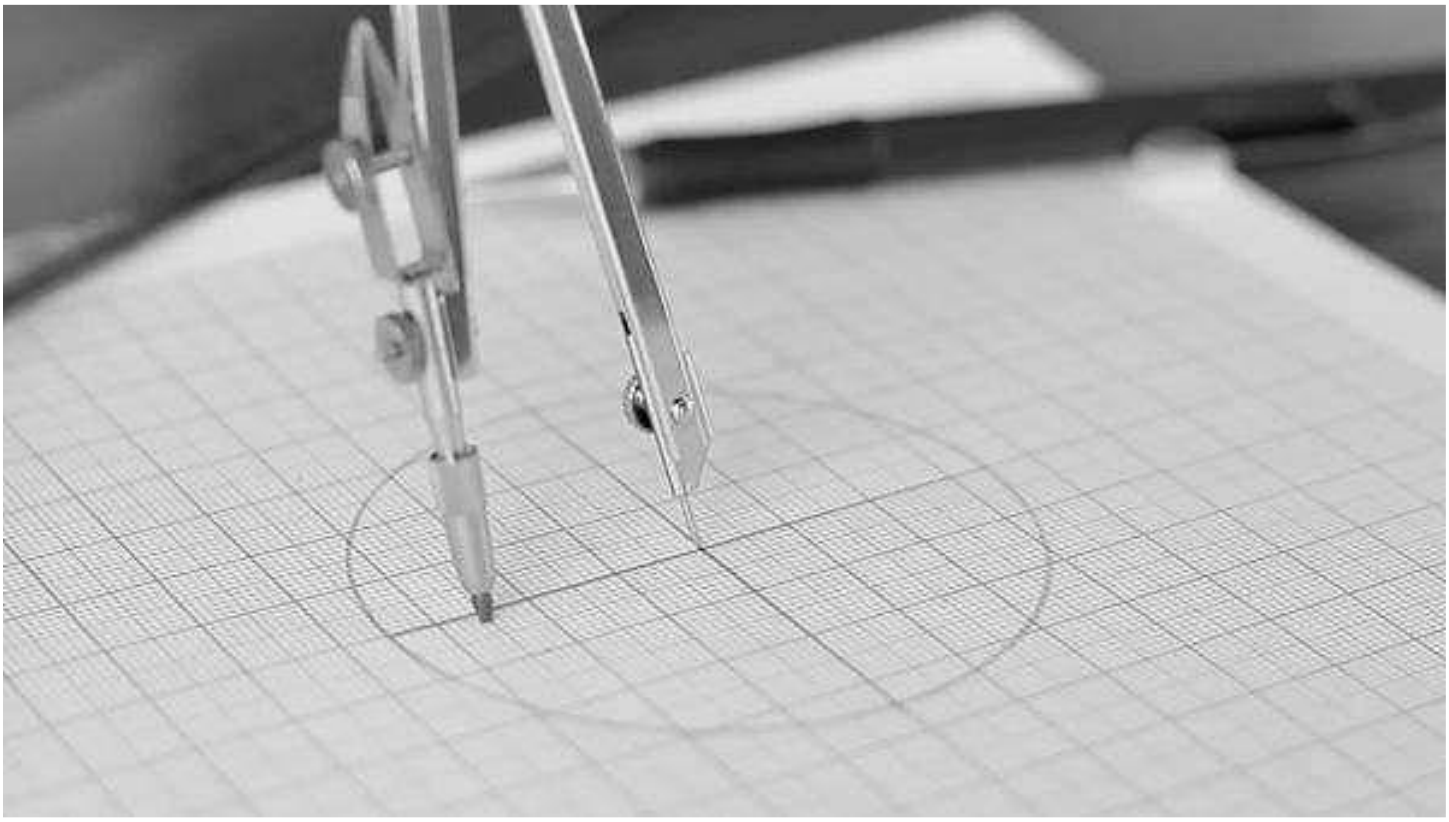
SUMMER PACKET
PREPARING FOR ACCEELERATED GEOMETRY



This packet will be reviewed within the first week of school.
All work must be shown and final solutions stated.

You will have a quiz on this information

Student's Name_____

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Preparing for Accelerated Geometry

The purpose of the packet is to help you review and reinforce concepts/topics that are necessary for Accelerated Geometry. This packet has been designed to provide a review of Algebra I skills that are essential for student success in Geometry. It also contains a review of Geometry concepts students should have previously learned. Completion of this packet over the summer will be of great value to helping students successfully meet the academic challenges awaiting them in Accelerated Geometry.

Instructions:
Complete all sections of this packet. You will show this completed packet to your Accelerated Geometry teacher the first day of school. All work must be shown and final answers should be circled.

Students MUST SHOW WORK that supports their understanding. Students will be given a grade for completing.

It may be necessary to seek assistance on some questions/concepts... that is fine!

Websites that may be of assistance:

www.mathforum.org/dr.math Use this web site if you have a math questions that you need answered.

www.virtualnerd.com Over 1,500 video lessons covering Middle Grades Math through Algebra 2.

www.khanacademy.org Expert-created content and resources for every course and level.

www.AAAmath.com. Customized by grade level and topic, AAA Math features explanations of various mathematical topics, practice problems and fun, challenging games.

www.coolmath.com This fully interactive site and allows the user to sharpen basic math skills, play games and explore new math concepts.

www.figurethis.org Created by the National Council of Teachers of Mathematics, this site helps families enjoy mathematics outside school through a series of fun and engaging challenges.

The more math you explore, the more prepared you will be in September!

Operations with Radicals – Simplify the expression. (*Don't forget to rationalize the denominator)*

1) $\sqrt{27x^4}$

2) $\sqrt[3]{40}$

3) $2\sqrt{45}+2\sqrt{5}$

4) $5\sqrt{15}(5+2\sqrt{6})$

5) $\frac{1}{\sqrt{4}}$

6) $\frac{\sqrt{3}+3\sqrt{5}}{2\sqrt{8}}$

Factor using any method (GCF, DOTS, AC method, Grouping, etc…)

7) $x^3-2x^2+5x-10$

8) $3x^2-5x+2$

9) x^4-13x^2+36

10) x^2-36y^2

Solve the following equations.

11) $3x^2-34x-24=0$

12) $x^4-10x^2+9=0$

13) $\frac{1}{10}+\frac{4x}{5x}=\frac{-9}{2x}$

14) $\frac{3}{6x}-\frac{9}{12}=\frac{11}{4x}$

Find the slope of the line that contains each pair of points

15) (3,10) and (2,5)

16) (12, -2) and (0,6)

Write an equation that describes each line in slope-intercept form.

17) Slope = 8, y-intercept = -6

18) Slope = $-\frac{1}{2}$, (8,-1) is on the line

Write an equation in point-slope form for the two given points

19) (-5, -1) and (-3, -8)

20) (-3, -7) and (6,-5)

Solve by completing the square.

21) $x^2 + 10x = -21$

22) $-x^2 + 6x - 3 = 0$

Distance and Midpoint (leave answers in simplest radical form)

23) A diameter of a circle has endpoints $(-2,5)$ and $(4,7)$. What is the length of the diameter?

24) A diameter of a circle has endpoints $(-2,5)$ and $(4,7)$. What are the coordinates of the center of the circle?

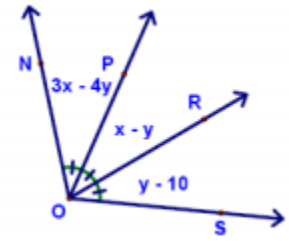
25) Find the distance between the points $P, (w-2n, e+f)$ and $Q(w+n, e-2f)$.

26) Find the midpoint of $(\sqrt{8}, -\sqrt{12})$ and $(3\sqrt{2}, 7\sqrt{3})$.

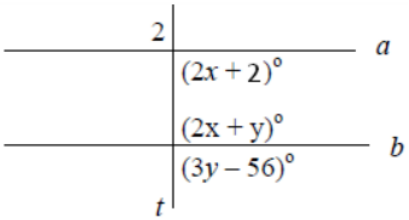
Angle Relationships

27) Given $\angle TRS$ is a straight angle, $\angle TRX$ is a right angle, $m\angle TRS = 2x + 5y,\ m\angle TRX = 3x + 3y$. Solve for x and y.

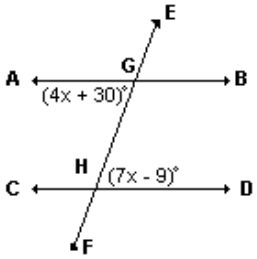
28) Given $\angle NOP \cong \angle POR \cong \angle ROS$, $\angle NOP = 3x - 4y$, $\angle POR = x - y$, and $\angle ROS = y - 10$. Find the $m\angle ROS$



29) $a \parallel b$. Find $m\angle 2$.



30) In the diagram, parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are intersected by transversal $\overleftrightarrow{EF}$ at *G* and *H*, respectively. If $m\angle AGH = 4x + 30$ and $m\angle GHD = 7x - 9$, what is the value of *x*?



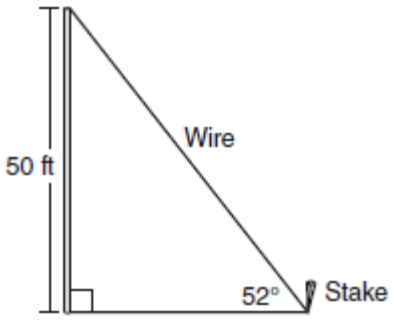
Parallel and Perpendicular Lines

31) Write an equation of a line parallel to the line $y = \frac{3}{4}x - 6$ and having the *y*-intercept of $(0, -2)$.

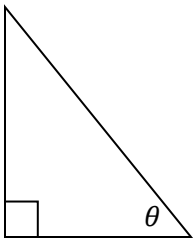
32) Line *m* contains $(6,8)$ and $(-1,2)$. Line *n* contains $(-1,5)$ and $(5, y)$. What is the value of *y* if line *m* is perpendicular to line *n*? Write the equation for line *n*.

Trigonometry

33) A stake is to be driven into the ground away from the base of a 50-foot pole, as shown in the diagram below. How far away from the base of the pole should the stake be driven in, to the *nearest foot*?



34) If $\cos\theta = \frac{4}{5}$, find the values of the other two trigonometric functions (sin and tan).



35) Scott, whose eye level is 1.5 m above the ground, stands 30 m from a tree. The angle of elevation of a bird at the top of the tree is 36°. How far above ground is the bird to the nearest tenth?

36) A ship on the ocean surface detects a sunken on the ocean floor at an angle of depression of 50 degrees. The distance between the ship on the surface and the sunken ship on the ocean floor is 200 meters. If the ocean floor is level in this area, how far above the ocean floor, to the nearest meter, is the ship on the surface?

Unit Conversions – Round to the nearest tenth if necessary

37) 60 miles per hours into meters per second

38) 130 meters per second into miles per hour

39) 53 yards per hour into inches per week

40) 12080 gallons per month into liters per hour (Assume there are 30 days in a month)

Write the equation of the circle

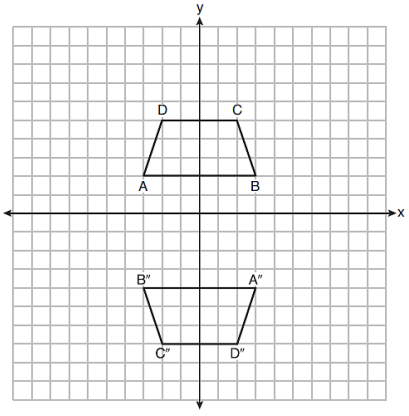
41) Write the equation of circle K whose diameter has endpoints A(5,4) and B(1,-8).

42) Write the equation of the circle and identify the center and radius.
$-6x = -x^2 + 32y - 264 - y^2$

Transformations

43) Trapezoids *ABCD* and *A"B"C"D"* are graphed on the set of axes below.

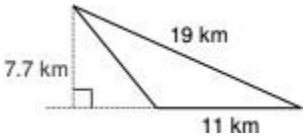
Describe a sequence of transformations that maps trapezoid *ABCD* onto trapezoid *A"B"C"D"*.



44) The vertices of ΔABC are A(1,2), B(5,3) and C(3,4). Find the coordinates of ΔABC under $T_{0,-4} \circ r_{y-axis}$

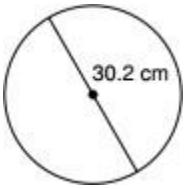
Find the area of each figure.

45)

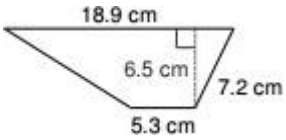


46)

47)

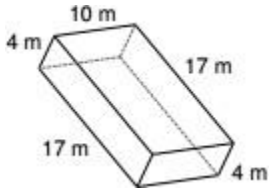


48)



Find the volume of each figure

49)



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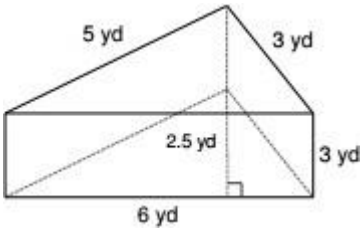

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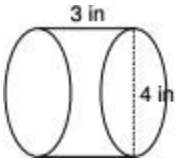

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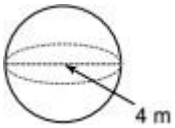

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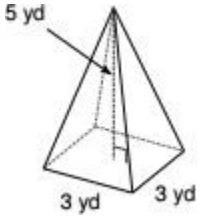

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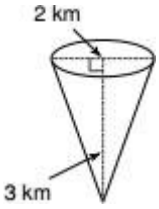

Answers to odd numbered problems. Even numbered answers will be given within first week of school.

1. $3x^2\sqrt{3}$
3. $8\sqrt{5}$
5. $\frac{1}{2}$
7. $(x-2)(x^2+5)$
9. $(x-2)(x+2)(x-3)(x+3)$
11. $x=-\frac{2}{3}$ and $x=12$
13. $x=-5$
15. $m=5$
17. $y=8x-6$
19. $y+1=-\frac{7}{2}(x+5)$ or $y+8=-\frac{7}{2}(x+3)$
21. $x=-7$ and $x=-3$
23. $2\sqrt{10}$
25. $3\sqrt{f^2+n^2}$
27. $x=-10$ and $y=40$
29. $x=34$ and $y=42$
31. $y=\frac{3}{4}x-2$
33. 39 feet
35. 23.3 meters
37. 26.8 meters per second
39. 320,544 inches per week
41. $(x-3)^2+(y+2)^2=40$
43. *Answers will vary*: A rotation of 180° on the origin followed by a translation of two units down.
45. 42.35 km^2
47. $228.01\pi\ cm^2$
49. 680 cubic meters
51. 12π cubic inches
53. 15 cubic yards