## Summer Packet

## Honors Geometry



Welcome to Honors Geometry! Both Algebra 1 and Algebra 2 content are present in this packet, because of the diverse mathematical background of the student base in Honors Geometry. Do your best on the entire packet and be sure to follow directions! There will be an assessment on this material within the first week of school. Good Luck :)

If you have any questions as you work you can email me using sara.starnes@knoxvillecatholic.com, I will probably be checking my email once a week.
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Indicate the answer choice that best completes the statement or answers the question. SHOW ALL YOUR WORK. SIMPLIFY!!!

1. Write an equation in slope-intercept form for the line that satisfies the following condition. slope $\frac{1}{4}$ and passes through $(10,-20)$
a. $y=10 x-22.5$
b. $y=\frac{1}{4} x-22.5$
c. $y=\frac{1}{4^{x}}-20$
d. $y=-20 x+\frac{1}{2}$
2. Write an equation in slope-intercept form for the line that satisfies the following condition. slope 4 and passes through $(6,21)$
a. $y=4 x+21$
b. $y=21 x+6$
c. $y=21 x-3$
d. $y=4 x-3$
3. Write an equation in slope-intercept form for the line that satisfies the following condition. passes through $(2,15)$, parallel to the line that passes through $(14,18)$ and $(31,23)$
a. $y=\frac{5}{17} x+\frac{245}{17} \quad$ b. $y=\frac{245}{17} x+\frac{245}{17}$
c. $y=\frac{5}{17} x+2$
d. $y=5 x+\frac{5}{17}$
4. Write an equation in slope-intercept form for the line that satisfies the following condition.
passes through $(26,9)$, perpendicular to the graph of $y=\frac{1}{2} x+15$
a. $y=61_{x}+\frac{1}{2}$
b. $y=-2 x+61$
c. $y=\frac{1}{2} x+61$
d. $y=-2 x+(-2)$
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5. Graph the given inequality.
$9 x+19 y \geq 8$
a.

b.

c.

d.

6. Graph the given inequality.
$10 x+20 y \geq-9$

$\qquad$ Date: $\qquad$
Use the elimination/linear combination method to solve each system of equations.
7. $-4 x-2 y=-2$
$-6 x+2 y=-8$
a. $(-1,1)$
b. $(-1,6)$
c. $(6,-1)$
d. $(1,-1)$
8. $-2 x-3 y=-39$
$-2 x-6 y=-54$
a. $(5,12)$
b. $(12,5)$
c. $(6,-1)$
d. $(-1,6)$

Use substitution to solve the given system of equations.
9. $y=4 x+22$
$4 x-6 y=-32$
a. $(-5,2)$
b. $(2,-5)$
c. $(-8,1)$
d. $(4,7)$
10. $x-5 y=-3$
$-7 x+8 y=-33$
a. $(2,7)$
b. $(-5,1)$
c. $(7,2)$
d. $(1,-5)$
$\qquad$ Date: $\qquad$
Indicate the answer choice that best completes the statement or answers the question. Use the method indicated!
Solve the equation by completing the square.
11. $x^{2}+10 x-24=0$
a. $\{-2,12\}$
b. $\{-12,2\}$
c. $\{2,12\}$
d. $\{-2,-12\}$

Solve the equation using the quadratic formula.
12. $4 x^{2}+7 x+2.5=0$
a. $\left\{2,-\frac{5}{4}\right\}$
b. $\left\{-\frac{5}{4},-\frac{1}{2}\right\}$
c. $\{2,5\}$
d. $\left\{-\frac{1}{2}, 5\right\}$

Solve the equation by factoring.
13. $x^{2}+5 x-36=0$
a. $\{-4,9\}$
b. $\{-9,4\}$
c. $\{4,9\}$
d. $\{-4,-9\}$
14. Solve the quadratic equation by graphing.
$x^{2}+6 x+9=0$


What do we call this kind of solution?
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$\qquad$
15. Solve the quadratic equation by graphing.
$\mathrm{x}^{2}-3=2 \mathrm{x}$

16. Simplify the radical expression. DO NOT USE A CALCULATOR. NO DECIMALS!!!
a. $2 \sqrt{15}-\sqrt{13}$
b. $9 \sqrt{3}-4 \sqrt{3}$
c. $5 \sqrt{18}-7 \sqrt{72}$
d. $2 \sqrt{3}+5 \sqrt{2}+8 \sqrt{3}$
e. $7 \sqrt{2}+6 \sqrt{2}-3 \sqrt{2}$
f. $5 \sqrt{48}-6 \sqrt{27}$
17. Express each of the following square roots in simplest form. Do not use a calculator. No decimals!
$\sqrt{8}$
$\sqrt{48}$
$\sqrt{80}$
$\sqrt{28}$
$\sqrt{50}$
$\sqrt{45}$
$5 \sqrt{300}$
$2 \sqrt{44}$
$3 \sqrt{96}$
$3 \sqrt{25}$
$\frac{1}{3} \sqrt{27}$
$\frac{1}{2} \sqrt{48}$
$\qquad$ Date: $\qquad$
$4 \sqrt{75}$
$2 \sqrt{72}$
$\sqrt{6} \cdot \sqrt{8}$
$2 \sqrt{5} \cdot 3 \sqrt{8}$
$2 \sqrt{3} \cdot 4 \sqrt{3}$
$(4 \sqrt{3})^{2}$
$3 \sqrt{5} \cdot 4 \sqrt{5}$
$(\sqrt{6})^{2}$
$\sqrt{3} \cdot 2 \sqrt{6}$
$(5 \sqrt{3})^{2}$

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\frac{\sqrt{75}}{\sqrt{5}}
$$

$\frac{\sqrt{2}}{\sqrt{5}}$
$\sqrt{\frac{5}{3}}$
$\sqrt{\frac{1}{2}}$
$\frac{2}{\sqrt{3}}$
$\frac{\sqrt{3}}{\sqrt{27}}$
$\frac{\sqrt{144}}{\sqrt{12}}$
$\frac{\sqrt{9}}{\sqrt{8}}$
18. Find the area and perimeter of a rectangle whose sides are $3+4 \sqrt{2}$ and $5+6 \sqrt{2}$.
19. Find the perimeter of a regular hexagon whose sides measure $5 \sqrt{2}+7 \sqrt{8}$ feet.

