

8th Grade Summer Packet for Students Enrolled in Accelerated Algebra I/Geometry A
2016-2017 School Year

Dear Parents and Students,

This math packet contains 50 problems related to the 8th grade Common Core mathematics curriculum. Students enrolled to take Accelerated Algebra I/Geometry A are expected to possess full mastery of the 8th grade curriculum prior to entering this course. The purpose of this packet is three-fold:

1. Students will have the opportunity to review the 8th grade curriculum as a means to be better prepared for the accelerated pace of this course.
2. Students will demonstrate their preparedness for this course and mastery of skills of the content necessary to experience success in this course.
3. Students will gain a better understanding of the high-rigor expectations of this course and of the accelerated program at Lassiter High School.

Additionally, accelerated math students are expected to have skills and abilities to research and identify useful online resources when needed. Resources such as the Khan Academy or Google searches can help aid students in the areas or topics that require additional support.

This packet will be due on Monday, August 8, 2016. It will be graded for accuracy and recorded as a quiz grade.

I look forward to working with you and your child next school year.

Thanks,

Dr. Jamie Gabel
Mathematics Teacher
Lassiter High School

Directions: As you complete this packet, show your work (when appropriate), and write your final answers in the space provided.

Directions: Use the following information to answer questions 1 – 3.

Given: A(0, 0), B(4, 1), & C(-4, 1)

1) What is B' after a reflection over the y-axis?

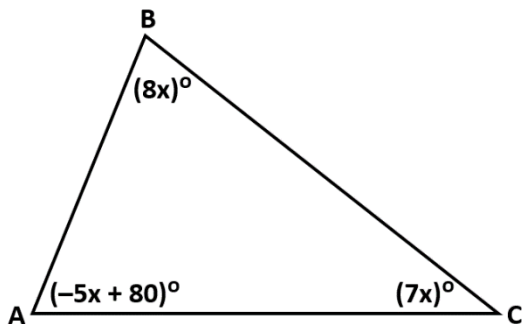
2) What is C' after a rotation of 270°CW about the origin?

3) What is A' after the following transformation has occurred: $(x, y) \rightarrow (x - 3, y + 10)$?

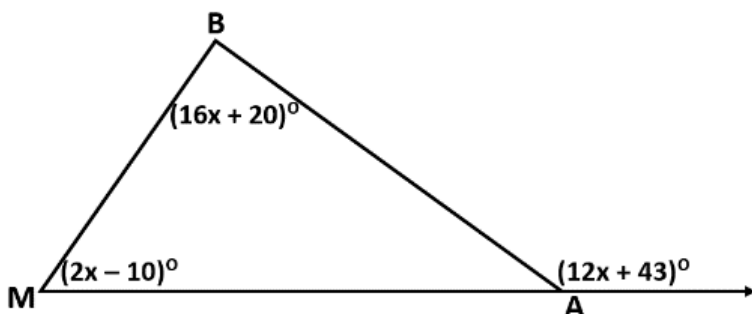
4) If $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$, is the resulting image similar or congruent to the pre-image?

5) Given the rule $(x, y) \rightarrow (y - 5, -x + 1)$, what is one possible sequence of transformations that could have occurred?

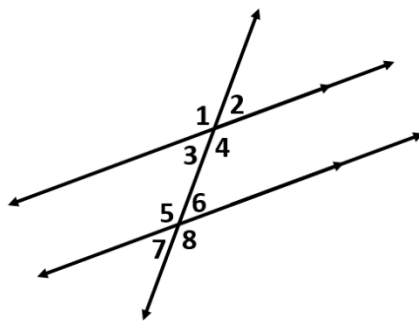
6) In the given figure, what is $m\angle A$? Note: the figure is NOT drawn to scale.



7) In the given figure, what is $m\angle B$? Note: the figure is NOT drawn to scale.



Directions: Use the given figure to answer questions 8 – 10.



8) Which angle is alternate interior to $\angle 4$?

9) If $m\angle 2 = 70^\circ$, what is the measure of its corresponding angle?

10) If $m\angle 3 = (2x + 5)^\circ$ and $m\angle 5 = (10x - 30)^\circ$, what is $m\angle 3$ to the nearest degree?

Directions: Simplify completely.

11) $\frac{x^3y^4}{x^5y}$

12) $\left(\frac{2x^6}{m}\right)^{-3}$

13) $(5m^{-6}j^5)^2$

Directions: Solve.

14) $5x^2 = 80$

15) $x^3 + 6 = -21$

16) What is $7.163E4$ written in standard form?

Directions: Solve.

17) $(5x - 12) + 2x = 20 + x$

18) $3x - 27 = 2x - (14 - x)$

19) $\frac{7}{12}x - \frac{1}{3} = \frac{3}{4}x - \frac{1}{2}$

20) $15.1(x + 6) - 10.3 = 204.12$

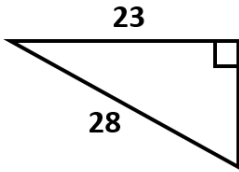
Directions: Determine whether the number is rational or irrational.

21) $8.\overline{61}$

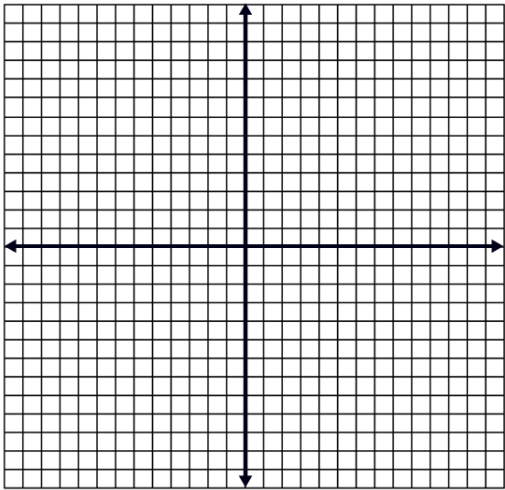
22) $\frac{2}{5}$

23) $\sqrt[3]{16}$

24) Find the length of the missing side to the nearest hundredth. Note: the figure is NOT drawn to scale.



25) What is the distance between A(-7, 10) and B(5, 5)?



26) Chandra has 6050in^3 of paint to pour into a cylindrical can that is 16in tall and has a diameter of 24in. Will the cylindrical can be large enough to hold all of this paint?

27) Which of the figures below are functions? Name ALL that apply.

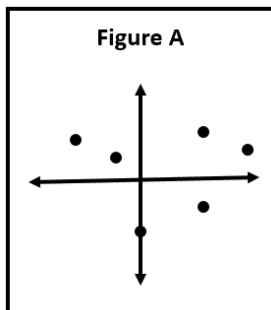


Figure B

X	Y
2	7
2	8
3	9
4	6

Figure C

$$y = 3x - 6$$

- Figure D**
- (3, 7), (4, -10),
(6, 8), & (11, 7)

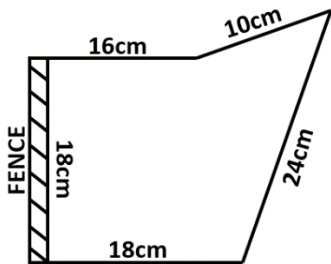
28) A vertical line is drawn on a graph such that it passes through 3 points. Does this graph represent a function?

29) Which linear function, $f(x)$ or $g(x)$, shows a greater rate of change?

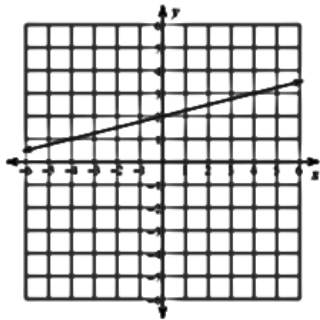
$$f(x) = 3x - 100$$

x	$g(x)$
4	5
10	7

30) Luke has drawn a model figure as shown below to represent a garden he wishes to build. If he is planning on using a scale factor of 2 cm : 5 ft, how long does the fence need to be?



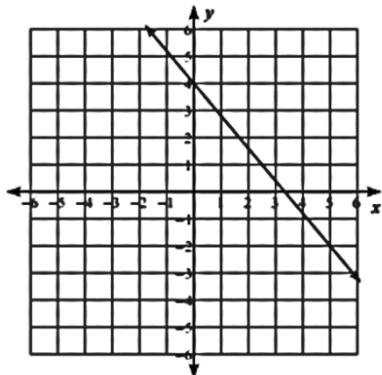
31) What is the slope of the line shown below?



32) What is the slope of the line that passes through $(-12, 5)$ and $(-3, -6)$?

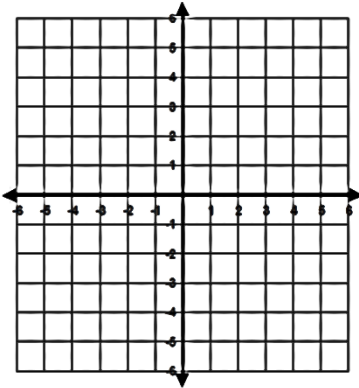
33) A line has a slope of 12 units and passes through the point $(6, -3)$. What is the equation of this line?

34) What is the equation of the line that is parallel to the line in the figure and that intersects the y -axis at $(0, -7)$?

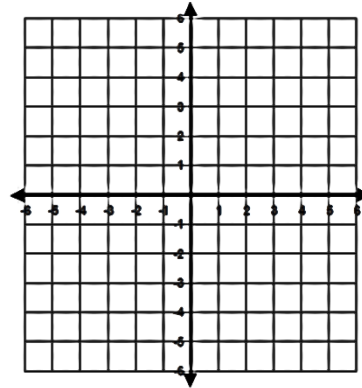


35) Line J is represented by the equation $3x - 2y = 10$. Line M is perpendicular to Line J at $(6, -1)$. What is the equation of Line M ?

36) Graph $y = -\frac{4}{5}x + 1$ using the slope and y-intercept.



37) Graph $2x - 4y = -8$ using intercepts.



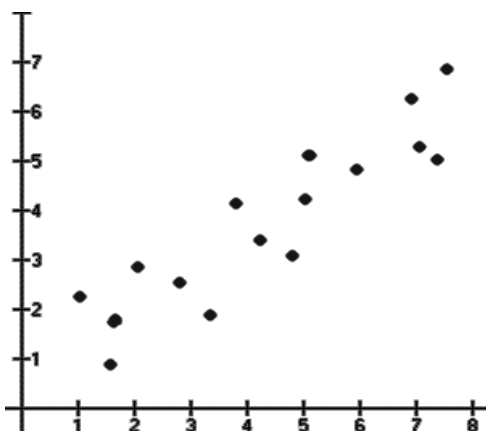
38) What is the equation of the line that has a slope of 7 and passes through $(4, 1)$ written in point-slope form?

39) Lucy has entered data from a study into her graphing calculator. She labels the x-values as “Years Spent in School from Birth” and the y-axis as “Average Annual Salary in Thousands”. She then uses her calculator to find the equation for a best fit line. The screen shot below represents her findings. Using the equation of the best fit line indicated on her calculator screen, what is the predicted average salary that an individual would earn if they spent 23 years in school?

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LinReg
y=ax+b
a=11.73128088
b=193.8521475
r^2=.9498583012
r=.9746067418
    
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40) Given the scatter plot below, which equation is the *most accurate* line of best fit?



- A) $y = \frac{2}{3}x + 1$
 - B) $y = x + 2$
 - C) $y = 2x$
 - D) $y = 1$
-

Directions: Use the information below to answer questions 41 – 42.

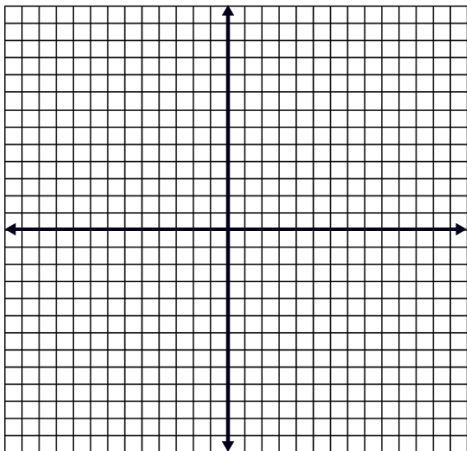
Mark collected data from 80 students regarding whether they have a curfew on weekends and whether they have a driver's license. 30 students said they can drive. 49 students said they have a curfew. Of the students that reported they could not drive, 26 of these students also do not have a curfew.

41) Create a 2-way frequency table to represent the data.

42) What percentage of students have both a curfew and a driver's license?

43) Is $(2, -5)$ a solution to the system of equations:
$$\begin{cases} 5x - 7y = 45 \\ -6x - 4y = 8 \\ x - 10y = 42 \end{cases}$$
?

44) Solve the system graphically:
$$\begin{cases} -3x + y = 5 \\ x + 2y = -4 \end{cases}$$



45) Solve the system using the substitution method: $\begin{cases} x - 6y = -23 \\ 4x + 9y = 7 \end{cases}$

46) Solve the system using the elimination method: $\begin{cases} 3x + 8y = -40 \\ 2x - 6y = -31 \end{cases}$

47) Solve the system: $\begin{cases} 5x - y = 18 \\ -10x + 2y = -36 \end{cases}$

Directions: In questions 48 – 50, write a system of equations that could be used to solve each problem.

48) Margaret has 26 coins in her pocket, all consisting of nickels and quarters. The sum total of coins is \$2.90. How many nickels does she have?

{ _____

49) Sam is 5 years older than Beth. In 2 years, Sam will be two times the age of Beth. How old is Sam?

{ _____

50) 8 hot dogs and 3 drinks cost \$12.40. 10 hot dogs and 12 drinks cost \$22.10. How much does a single hot dog cost?

{ _____
