Accelerated Precalculus Summer Review Packet

This packet contains many basic algebraic and geometric topics that we feel are necessary for you to have mastered to succeed in Accelerated Precalculus. You are to complete all problems in the packet, show all work, and put answers in the space provided. No work means no credit. Calculator

This packet will be collected on the first day of class in August and will be graded. Every problem requires some work. If there is not enough room on the packet, use notebook paper with all problems clearly numbered. You will need to turn that notebook paper in with the packet to get credit.

There will be a quiz over this packet during the second week of school. Date will be announced once we return to school.

Enjoy your summer, but please don't wait until the last minute to start this packet. Do a few problems per week (maybe a whole bunch on a rainy day or while you are lounging by the pool)!

Remember, the purpose of this packet is to ensure that you have mastered these skills prior to taking this class.

The packet has been divided in to the following categories:

Fractions	Quadratics	Rational Expressions
Solving Linear Equations	Domain & Range	Right Triangle Trigonometry
Linear Systems	Operations with Exponents	Trigonometric Functions

Resources you may want to use:

- Use your Algebra, Geometry, and Algebra 2 notes.
- khanacademy.org
- purplemath.com
- mathforum.org
- mathbits.com
- Graphing Calculator Apps: Wabbitemu or Desmos

If you have any questions regarding the requirements of this packet, please email me.

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FRACTIONS

https://www.khanacademy.org/math/arithmetic/fraction-arithmetic

Perform the given operation. Leave answers as a simplified fraction when necessary.

1) $\frac{7}{5} \div \left(5 + \frac{3}{2}\right)$

2) $1 + \frac{3}{2} \div \frac{6}{5}$

1) _____

2) _____

3) $\frac{3}{2}\left(2 + \frac{7}{6}\right)$

4) $\frac{5}{3} \cdot \frac{5}{3} \cdot 2$

3) _____

4) _____

SOLVING LINEAR EQUATIONS

https://www.khanacademy.org/math/algebra-2018/one-variable-linear-equations

Solve each Linear Equation for the stated variable.

5) Solve for x. $5x + 3(x - 2) = 4x + 1$

5) _____

6) Solve for m. $g = 4cm - 3cm$

6) _____

7) Solve for x. $-1(1 + 7x) - 6(-7 - x) = 36$

7) _____

SOLVING LINEAR SYSTEMS

https://www.khanacademy.org/math/algebra-2018/systems-of-linear-equations

Solve the following Linear Systems.

8) $3x + 4y = 12$
$2x - 3y = -9$

9) $2x + 9y - 5 = 0$
$5y - x = 26$

8) _____

9) _____

LINES

https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs and
https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations

10) Find the equation of the line containing the points (2, -3) and (4, 0). Write in standard, point-slope and slope-intercept form. Identify the slope and the *y*-intercept and graph.

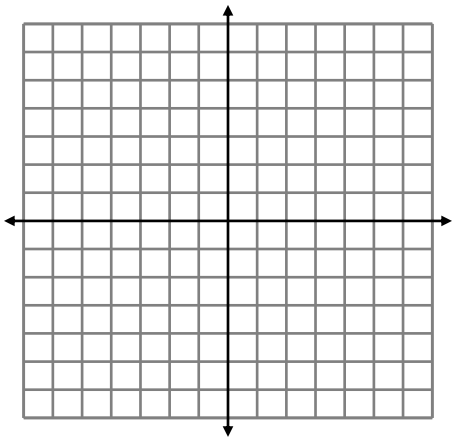
Slope _____

y-intercept _____

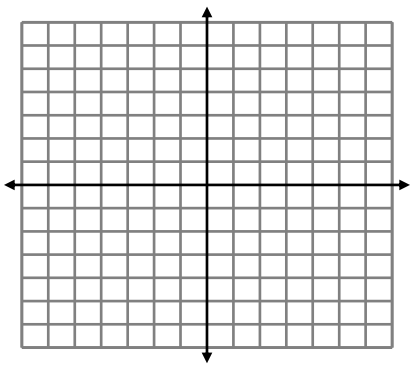
Eq (Standard Form)_____

Eq (Point-Slope Form) _____

Eq (Slope-Intercept Form)_____



11) Write the equation of the line perpendicular to $3x - 2y - 6 = 0$ that passes through the point (-2, 0). Graph both lines.



12) Find the distance between the center of the circle $(x+3)^2+(y+2)^2=9$ and the line $y=-x+4$.

13) Find the length and the midpoint of the line segment with endpoints (-2, 5) and (6, -7).

EXPONENTS & RADICALS

https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:exp
and
https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:rational-exponents-radicals#x2f8bb11595b61c86:simplifying-square-roots

Simplify the following expressions.

14) $(10x^2z^6)^3(5x^2z^5)^{-3}$

15) $\dfrac{2(-x)^3(3x^2)^{-2}}{x^{-2}}$

14) _____

15) _____

16) $\dfrac{12(x-y)^{-\frac{1}{2}}}{2(x-y)^{\frac{1}{2}}}$

17) $\dfrac{\sqrt[3]{108x^5}}{\sqrt[3]{4x^2}}$

16) _____

17) _____

18) $(-5x^3z^6)^3(-2xz^2)^{-2}$

19) $(8a^3b)^{\frac{1}{3}}(4a^2b^4)^{-\frac{1}{2}}$

18) _____

19) _____

COMPLEX NUMBERS

https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:complex

Simplify each of the following completely.

20) $(3+i)-(15-4i)+6i$

21) $(3+2i)(3-2i)$

20) _____

21) _____

22) $\frac{2+3i}{2i}$

23) $\frac{1-3i}{7-2i}$

22) _____

23) _____

24) i^{17}

25) i^{170}

24) _____

25) _____

FACTORING

https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratics-multiplying-factoring

Factor each of the following completely.

26) $4x^3-1372$

27) $2x^3-32x$

26) _____

27) _____

28) $3x^2+14x+8$

29) x^3+2x^2-4x-8

28) _____

29) _____

QUADRATICS

Solve by factoring.

https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratics-solve-factoring/v/example-1-solving-a-quadratic-equation-by-factoring

30) $x^2 - 8x = -18$

31) $x^2 + 3x = 10$

30) _____

31) _____

32) $5x^2 - 32x - 21 = 0$

33) $27x^2 = -18x$

32) _____

33) _____

34) $2x^2 + 20x + 12 = 5x - x^2$

34) _____

QUADRATICS

Solve by completing the square.

https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:completing-square-quadratics/v/solving-quadratic-equations-by-completing-the-square

35) $x^2 + 15 = 8x$

36) $3x^2 - 8x = -4$

35) _____

36) _____

QUADRATICS

https://www.khanacademy.org/math/algebra-home/alg-quadratics/alg-solving-quadratics-using-the-quadratic-formula/v/quadratic-formula-1

Solve by using the quadratic formula.

37) $2x^2 - 14x + 40 = 3x^2 - 16x + 32$ 37) _____

38) $x^2 - 4 = 3x$ 38) _____

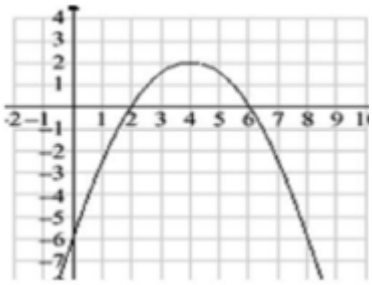
DOMAIN AND RANGE

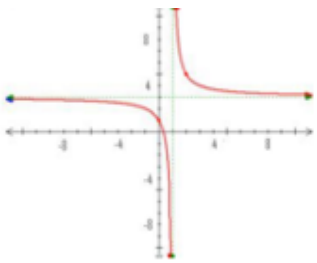
https://www.khanacademy.org/math/algebra-2018/algebra-functions#domain-and-range

Determine the domain and range of the following functions in interval notation.

39) $f(x) = x^4 + 3x^3 - x^2 - 5x$ Domain: _____ Range: _____

40) $f(x) = \sqrt{x+1} - 3$ Domain: _____ Range: _____

41)  Domain: _____ Range: _____

42)  Domain: _____ Range: _____

RATIONAL EXPRESSIONS

https://www.khanacademy.org/math/algebra2-2018/rational-expressions-equations-and-functions

Simplify or compute the following.

43) $\frac{x^2+x-6}{x^2-4}$

44) $\frac{x^2+x-12}{5x-15}$

43) _____

44) _____

45) $\left(\frac{3x^2+7x-6}{9x^2-4}\right)\left(\frac{15x^2+4x-4}{9-x^2}\right)$

46) $\frac{3}{x+5}-\frac{x}{5}$

45) _____

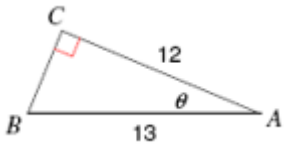
46) _____

RIGHT TRIANGLE TRIGONOMETRY

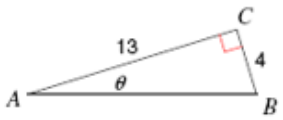
https://www.khanacademy.org/math/trigonometry/trigonometry-right-triangles

Find the measure of each angle indicated. Round to the nearest tenth.

47)



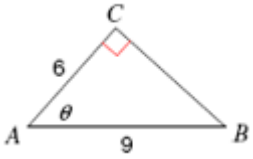
48)



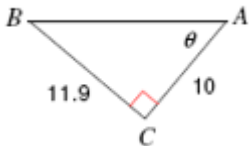
47) _____

48) _____

49)



50)

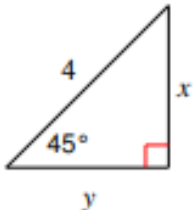


49) _____

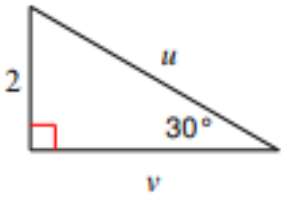
50) _____

Find the value of each variable. Find EXACT answers (integers or radicals in simplest form, no decimals)!

51)



52)



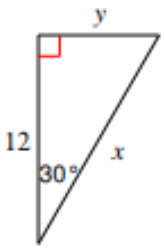
51) x = _____

y = _____

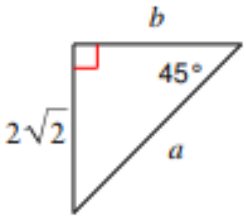
52) u = _____

v = _____

53)



54)



53) x = _____

y = _____

54) a = _____

b = _____

55) A 24-foot ladder is leaning against the side of a building. It makes a 60° angle with the ground. (Assume the ground is horizontal and the building is vertical.) How far is the base of the ladder from the building?

55) _____