

Summer Math Work

Directions: Complete all the problems in this packet showing all work. This work should be completed, to the best of your ability, by the first day of school. Please give yourself time to process and remember the skills and do not rush the process. You will not turn in your Summer Math at registration. You will need to bring it to class on the first day of school. Please note that all of the material in this packet was covered in previous math classes. The packet will be reviewed during the first week of class. The test on this work will be given at the end of the first week of school and will count as your first TEST grade. Below are some websites that contain videos or notes on skills that you may need to review. You are expected to show all work. Problems that are skipped or problems that do not show work where work should be shown will be marked wrong. Remember, the point is to review the process behind previous skills rather than just having a correct answer.

1. [Khanacademy.org](https://www.khanacademy.org)
2. [Youtube.com](https://www.youtube.com)
3. [Coolmath.com](https://www.coolmath.com)
4. [Purplemath.com](https://www.purplemath.com)

2026-2027

Period _____

Solve each equation.

1) $8x + 40 = 2 + 7(4x - 6)$

2) $-40 + 8a = 8(1 + 4a)$

Solve each equation. Remember to check for extraneous solutions.

3) $4 = \sqrt{6v - 2}$

4) $1 = \sqrt{3 - v}$

Simplify.

5) $\sqrt[3]{108n^3}$

6) $\sqrt{200n^4}$

7) $\frac{\sqrt{14}}{6\sqrt{21}}$

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

9) $\frac{10 + \sqrt{2}}{3 + \sqrt{2}}$

10) $-\frac{9}{3 + 4\sqrt{3}}$

11) $-\frac{4}{-9 + 10\sqrt{6}}$

12) $\frac{-4 + \sqrt{10}}{6 + \sqrt{3}}$

Solve each equation by factoring.

13) $v^2 = 24 - 5v$

14) $v^2 = -3v + 18$

15) $x^2 - 4x = -3$

16) $x^2 + 8 = 9x$

17) $7n^2 + 16 = 22n$

18) $7n^2 - 19n = 6$

19) $2b^2 + 25 = 15b$

20) $7x^2 + 6 = -23x$

Find the value that completes the square and then rewrite as a perfect square.

21) $x^2 - 32x + \underline{\hspace{1cm}}$

22) $x^2 - 14x + \underline{\hspace{1cm}}$

23) $x^2 - 8x + \underline{\hspace{1cm}}$

24) $x^2 - 22x + \underline{\hspace{1cm}}$

Solve each equation with the quadratic formula.

25) $6m^2 - 7m = 68$

26) $5x^2 - 4x = 7$

Identify the domain and range of each.

27) $y = \sqrt{x} - 4$

28) $y = \sqrt{x - 1}$

29) $y = \sqrt{x + 4} - 2$

30) $y = \sqrt{x - 2} + 1$

Math 112

Period _____

Describe the transformations necessary to transform the graph of $f(x)$ into that of $g(x)$.

1) $f(x) = x^2$
 $g(x) = x^2 - 3$

2) $f(x) = |x|$
 $g(x) = |x - 1|$

3) $f(x) = x^2$
 $g(x) = x^2 + 2$

4) $f(x) = |x|$
 $g(x) = |x| + 3$

Rewrite each equation in exponential form.

5) $\log_{20} \frac{1}{400} = -2$

6) $\log_6 \frac{1}{36} = -2$

7) $\log_5 \frac{1}{25} = -2$

8) $\log_{19} 361 = 2$

Rewrite each equation in logarithmic form.

9) $14^2 = 196$

10) $169^{-\frac{1}{2}} = \frac{1}{13}$

11) $6^2 = 36$

12) $49^{-\frac{1}{2}} = \frac{1}{7}$

Convert each degree measure into radians and each radian measure into degrees.

13) 85°

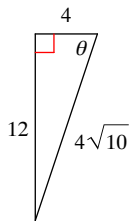
14) $-\frac{7\pi}{6}$

15) $\frac{\pi}{4}$

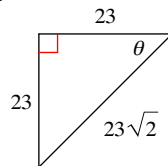
16) 30°

Find the value of the trig function indicated.

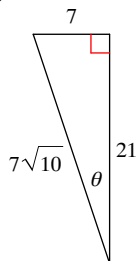
17) $\cos \theta$



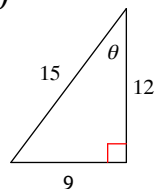
18) $\tan \theta$



19) $\sin \theta$

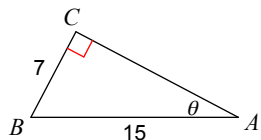


20) $\cot \theta$

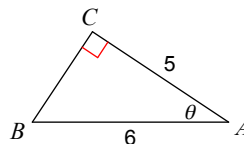


Find the measure of each angle indicated. Round to the nearest tenth.

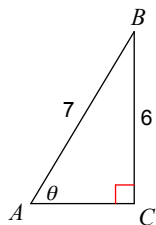
21)



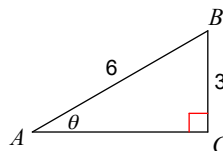
22)



23)

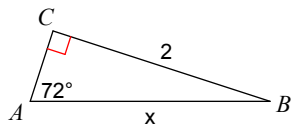


24)

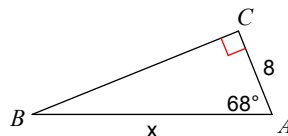


Find the measure of each side indicated. Round to the nearest tenth.

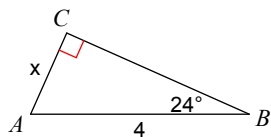
25)



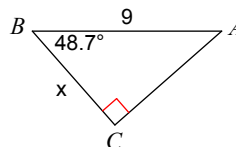
26)



27)



28)



Use the Law of Sines to find each measurement indicated. Round your answers to the nearest tenth.

29) $m\angle C = 114^\circ$, $m\angle A = 32^\circ$, $b = 19$ ft
Find a

30) $m\angle A = 53^\circ$, $m\angle B = 34^\circ$, $a = 20$ ft
Find b

31) $m\angle B = 109^\circ$, $m\angle C = 21^\circ$, $b = 37$ mi
Find c

32) $m\angle B = 20^\circ$, $m\angle A = 151^\circ$, $a = 34$ cm
Find b

Find the exact values of the five trigonometric ratios not given.

33) $\tan \theta = -\frac{5}{12}$ and $\cos \theta < 0$

34) $\sec \theta = -\sqrt{2}$ and $\sin \theta < 0$