

[Directions:] Do all problems in this packet. This assignment is due the first day of school regardless of whether you have math in the fall or in the spring. Please take the completed assignment to your assigned teacher on the first day of school. You will receive a completion grade for the assignment. **LATE WORK WILL NOT BE ACCEPTED.** Necessary work should be shown. Problems with answers and no work will not count towards the completion grade. Do not rush through the packet. Give yourself time to process and remember the skills. Please note that all of the material was covered in previous math classes. This work will be reviewed during the first week 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.

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)

Summer Math 2022-2023

$$1) \frac{5k^2 - 46k - 40}{2k^2 - 17k - 30}$$

Simplify each expression.

$$2) \frac{3}{3x} \cdot \frac{x^2 - 15x + 50}{3x - 15}$$

$$3) \frac{x - 4}{x + 2} \cdot \frac{x^2 - 2x - 8}{x - 4}$$

$$4) \frac{4r - 16}{r - 10} \div \frac{20r - 80}{10}$$

$$5) \frac{8}{r^2 - 8r - 20} \div \frac{1}{10 - r}$$

$$6) \frac{5}{n^2 - 2n - 24} + \frac{3n}{4}$$

$$7) \frac{4r}{r + 2} + \frac{5}{r - 6}$$

$$8) \frac{4}{r - 4} - \frac{6r}{12r + 16}$$

$$9) \frac{\frac{m}{m + 1} + \frac{m + 1}{m + 3}}{\frac{m + 3}{m + 1}}$$

$$10) \frac{\frac{25}{u^2}}{\frac{1}{2} + \frac{u}{2}}$$

Solve each equation. Remember to check for extraneous solutions.

$$11) \frac{1}{v - 2} + \frac{v + 6}{v^2 - 2v} = \frac{3}{v - 2}$$

$$12) \frac{x}{4x^2 - 2x - 12} = \frac{1}{2x + 3} + \frac{1}{4x^2 - 2x - 12}$$

$$13) \frac{3}{n + 6} = 1 + \frac{1}{n + 6}$$

$$14) \frac{4n - 24}{n^2 + n} = \frac{1}{n + 1} + \frac{5}{n^2 + n}$$

$$15) \frac{k^2 - k - 6}{k} = k + 3 + \frac{6}{k}$$

Simplify.

16) $(81k^{12})^{\frac{5}{4}}$

17) $(n^8)^{\frac{1}{2}}$

Write each expression in radical form.

18) $(7b)^{\frac{2}{3}}$

19) $(3x)^{\frac{3}{2}}$

Simplify.

20) $\frac{5\sqrt{6} + 5\sqrt{5}}{6 - \sqrt{2}}$

21) $\frac{\sqrt{2}}{4\sqrt{6}}$

22) $7\sqrt[3]{32x^3y^6}$

Write each expression in exponential form.

23) $(\sqrt[3]{6n})^5$

24) $(\sqrt[6]{m})^5$

Solve each equation. Remember to check for extraneous solutions.

25) $4 = \sqrt{x - 6}$

26) $\sqrt{15 - a} = \sqrt{2a - 12}$

27) $\sqrt{33x - 2} - 10 = -2$

Divide.

28) $(6a^3 - 28a^2 + 20a + 37) \div (a - 3)$

29) $(6p^3 - 42p^2 - 3) \div (p - 7)$

Evaluate each function at the given value.

30) $f(m) = -4m^4 + 15m^3 + 30m^2 - 27m + 10$ at $m = 5$

31) $f(x) = x^3 - 3x^2 - 9x - 12$ at $x = 5$

Find all zeros.

32) $f(x) = 9x^3 - 3x^2 - 20x - 6$

Factor each.

33) $x^3 - 3x^2 - 5x + 15 = 0$

34) $x^3 + 125 = 0$

35) $x^2 + 9x + 20 = 0$

36) $x^2 - x - 6 = 0$

Evaluate each expression.

37) $\log_4 16$

38) $\log_4 64$

Rewrite each equation in exponential form.

39) $\log_7 \frac{1}{49} = -2$

40) $\log_7 \frac{1}{343} = -3$

Rewrite each equation in logarithmic form.

41) $324^{\frac{1}{2}} = 18$

42) $12^{-2} = \frac{1}{144}$

Solve each equation.

43) $\log(9 - 3x) = \log(x + 1)$

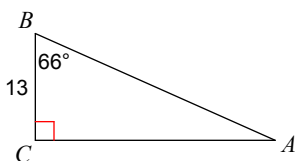
44) $\log(4n + 4) = \log(4 - 2n)$

Find the value of the trig function indicated.

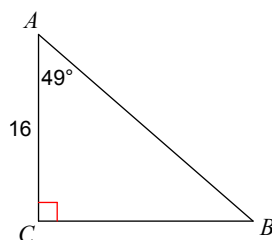
45) Find $\cos \theta$ if $\cot \theta = 3\sqrt{7}$

Solve each triangle. Round answers to the nearest tenth.

46)



47)



Use the given point on the terminal side of angle θ to find the value of the trigonometric function indicated.

48) $\sec \theta; (5, -15)$

49) $\cos \theta; (-\sqrt{7}, -3)$

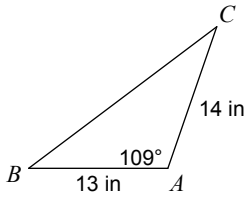
Convert each degree measure into radians and each radian measure into degrees.

50) -580°

51) $-\frac{23\pi}{18}$

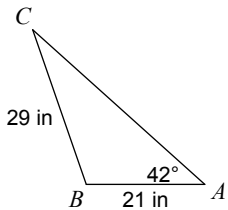
Solve each triangle using laws of cosines. Round your answers to the nearest tenth.

52)



Solve each triangle using law of sines. Round your answers to the nearest tenth.

53)



Simplify.

54) $3\sqrt{15}(\sqrt{10} + \sqrt{2})$

55) $(-5 + \sqrt{5})(3 + 3\sqrt{5})$

56) $-\sqrt{27} + 2\sqrt{12} - 3\sqrt{3}$

57) $-\sqrt{27} + 2\sqrt{8} - 3\sqrt{8}$