

Christ the King Diocesan High School

Pre-Calculus

Summer Math Packet 2024

This packet will help you review basic algebra concepts.

- Please show all your work. No work, No credit!  
(If you need more room, use loose-leaf paper to do your work and staple it to the corresponding worksheet.)
- You will be expected to do a worksheet every week.
- Do not wait to do all of the worksheets at one time.
- The COMPLETED packet is due August 16, 2024

## Page 1 Factoring

Date \_\_\_\_\_

**Factor each trinomial completely. Remember the X-Factor Method.**

1)  $p^2 - 2p - 48$

2)  $15x^2 + 20x - 100$

3)  $7k^2 - 10k$

**Factor each using difference of squares.**

4)  $16n^2 - 25$

5)  $a^2 - 4$

6)  $3p^2 + 36p + 108$

7)  $81n^2 - 49$

**Factor each using the grouping method.**

8)  $9m^3 - 15m^2 + 21m - 35$

**Solve each equation by completing the square.**

9)  $a^2 - 12a + 35 = 0$

10)  $x^2 + 8x - 9 = 0$

**Solve each equation with the quadratic formula.**

11)  $p^2 - 4p - 5 = 0$

12)  $2n^2 - n - 6 = 0$

## Page 2 Exponent Operations

Date \_\_\_\_\_

**Simplify.**

1)  $(x^3 \cdot (3x^2)^2)^3$

2)  $(3k)^0 \cdot (2k^3)^3$

3)  $v \cdot (3v)^2$

4)  $(v^2v^2)^3$

**Simplify. Your answer should contain only positive exponents.**

5)  $(-x^4 \cdot x^0)^3$

6)  $(-yy^2)^5$

7)  $(-m^5n^4)^{-2} \cdot m^2n^5$

8)  $(-n^3)^{-2} \cdot m^{-1}n^5$

9)  $v^{-1} \cdot (-u^2v^{-5})^{-2}$

10)  $y^2 \cdot (x^5y^{-5})^3$

## Page 3 Radicals

Date \_\_\_\_\_

**Simplify.**

1)  $\sqrt{32}$

2)  $\sqrt{125}$

3)  $-3\sqrt{216n^2}$

4)  $2\sqrt[4]{162n^2}$

5)  $-\sqrt{10} + 4\sqrt{10}$

6)  $4\sqrt{7} + 5\sqrt{7}$

7)  $2\sqrt{5} - 3\sqrt{27} + 2\sqrt{5}$

8)  $\frac{\sqrt{15}}{\sqrt{80}}$

9)  $\frac{3\sqrt{3}}{2\sqrt{16}}$

10)  $\frac{\sqrt{2}}{3 + 5\sqrt{2}}$

11)  $-\frac{1}{-3 - \sqrt{2}}$

12)  $\sqrt{12} \cdot \sqrt{12}$

13)  $-4\sqrt{6}(\sqrt{3} + \sqrt{2})$

14)  $\sqrt{15}(\sqrt{6} + \sqrt{5})$

Page 4 Rationals/Trig Ratios

Simplify each expression. Hint: Use factoring.

1)  $\frac{10r^2 + 80r}{r + 8}$

2)  $\frac{54p}{30p^2 - 18p}$

Simplify each using factoring.

3)  $\frac{10p^2}{25p^2 - 25p}$

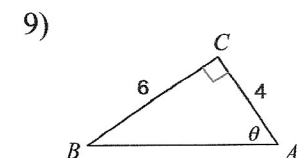
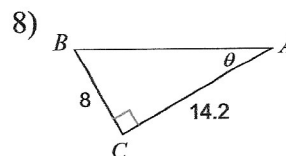
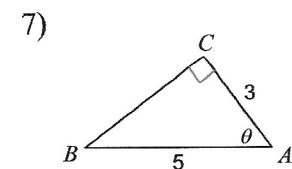
4)  $\frac{5x^2 + 5x}{x + 1}$

Simplify each expression. Hint: You need to have common denominators.

5)  $\frac{6x}{2x} + \frac{2y}{4y}$

6)  $\frac{5v}{5u} - \frac{3u}{6u}$

Find the measure of each angle indicated. Round to the nearest tenth. Hint: Angles with trig use the inverse function.



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

