

Name: _____

2017–2018 Mathematics Teacher: _____



Summer Review for incoming Calculus CP students

Please complete this review packet for the
FIRST DAY OF CLASS.

The problems included in this packet will provide you with the opportunity to practice the mathematical skills you have learned throughout the current school year and will help you to be prepared for the concepts you will learn in Calculus CP next school year. You are responsible for **ALL** the concepts covered in the packet. If you do not remember how to complete a problem, look it up in your notes or online. If you should misplace this packet, you can find a copy posted on the district website:
<http://nbhs.northbranfordschools.org/>

A **quiz** will be given on the material within the first week of classes.

You will receive a homework grade on this packet based on the following criteria:

- Work is received on the first day of class
- All problems are completed
- All work is shown

Evaluate the following expression for the given value(s). Reduce to lowest terms if possible.

1. $\frac{7(x^2 + 8) - (x - 4)}{16x + 8}, \quad x = -2$

2. $-8x^3 + 4x^2 - 10x + 7, \quad x = -2$

Simplify.

3. $(5x + 7)(3x^2 - 6x - 3)$

4. $(3y^2 - 6)^2$

Simplify each expression. Use only positive exponents.

5. $\sqrt{4x^2}$

6. $\left(\frac{2}{3}\right)^{-2}$

7. $\frac{3x^2y^{-4}}{x^{-5}y^0}$

Factor each polynomial.

8. $x^2 - x - 30$

9. $3x^2 - 4x - 15$

10. $25x^2 - 144y^4$

11. $27x^3 - 1$

Multiply.

12. $(5\sqrt{a} + a\sqrt{5})^2$

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

Convert to radical form and evaluate each expression.

14. $25^{-\frac{3}{2}}$

15. $-27^{\frac{1}{3}}$

Convert to rational exponent form.

16. $(\sqrt[4]{3x})^5$

17. $-5\sqrt[3]{y^2}$

Multiply or divide.

18. $3x^{\frac{5}{6}} \cdot x^{\frac{1}{2}}$

19. $\frac{5x^{\frac{1}{3}}}{10x^{\frac{2}{9}}}$

20. Solve the following quadratic equations.

a) $5x^2 - 13x + 6 = 0$

b) $25x^2 - 144 = 0$

c) $x^2 - x = 6$

d) $(x - 3)^2 - 90 = 0$

e) $12x^2 + 36 = 0$

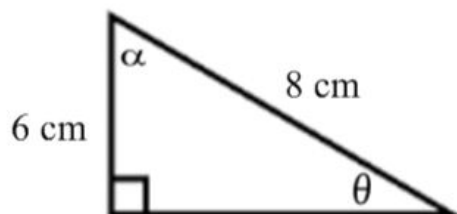
21. Rationalize the denominator.

a) $\frac{\sqrt{2}}{\sqrt{6}}$

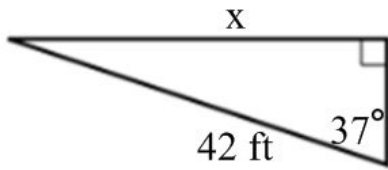
b) $\frac{1 + \sqrt{2}}{3 - \sqrt{2}}$

For problem #22, find \sin , \cos and \tan of θ and α . It is not necessary to rationalize the denominator, but leave all answers in simplest radical form and reduce all fractions. Do not give decimal answers.

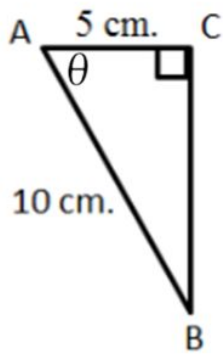
22.



23. Use right triangle trigonometry to find the missing side length.



24. Use right triangle trigonometry to find the missing angle measure.



For problems #25-26, solve the triangle.

25. $\angle A = 22^\circ$, $a = 5\text{ cm}$

$m\angle A =$ $a =$

$m\angle B =$ $b =$

$m\angle C =$ $c =$

26. $a = 6.82 \text{ ft}$, $b = 3.64 \text{ ft}$

$m \angle A =$

$a =$

$m \angle B =$

$b =$

$m \angle C =$

$c =$

For problems #27-28, draw a diagram to represent the situation and write an equation. Then solve the problem.

27. The shadow of a vertical tower is 40.6 m long when the angle of elevation of the sun is 34.6° . Find the height of the tower.

28. A company safety committee has recommended that a floodlight be mounted in a parking lot so as to illuminate the employee exit. If the light is going to be placed on top of a 40ft pole whose base is 51 ft from the employee exit, find the angle of elevation of the light.