

PreCalculus Summer Review

When do I do the worksheet? **NO EARLIER** than two weeks before school starts. **That way it will be fresh on your mind when school starts.**

When is it Due? **1st day of Class**

Will it count as a grade? **Yes – Homework grade**

Will you grade the work? **Yes-I gave you the answers below the problems**

Will there be a test over this material? **Yes – The 1st week of school**

What if I need help? **Use the tutorial sites below.**

Tutorials:

<http://www.algebrahelp.com/>

http://www.wtamu.edu/academic/anns/mps/math/mathlab/int_algebra/index.htm

http://www.mathnotes.com/aw_intermediate.html

This is a review of Algebra skills necessary to understand the concepts taught in PreCalculus.

1. List all the rational numbers in this set. $\{-7, -\frac{4}{5}, 0, 0.25, \sqrt{3}, \sqrt{4}, \frac{22}{7}, \pi\}$

In Exercise 2-3, state the name of the property illustrated.

2. $3(2+5) = 3(5+2)$ 3. $6(7+4) = 6 \cdot 7 + 6 \cdot 4$

4. Express in scientific notation: 0.00076.

Simplify each expression in Exercises 5-11.

5. $9(10x - 2y) - 5(x - 4y + 3)$ 6. $\frac{30x^3y^4}{6x^9y^{-4}}$ 7. $\sqrt{6r}\sqrt{3r}$ 8. $4\sqrt{50} - 3\sqrt{18}$

9. $\frac{3}{5+\sqrt{2}}$ 10. $\sqrt[3]{16x^4}$ 11. $\frac{x^2 + 2x - 3}{x^2 - 3x + 2}$

12. Evaluate: $27^{\frac{5}{3}}$

In exercises 13-14, find each product.

13. $(2x - 5)(x^2 - 4x + 3)$ 14. $(5x + 3y)^2$

In Exercises 15-20, factor completely.

15. $x^2 - 9x + 18$ 16. $x^3 + 2x^2 + 3x + 6$ 17. $25x^2 - 9$ 18. $36x^2 - 84x + 49$

19. $y^3 - 125$ 20. $(x^2 - 9)(x^2 + 1)^{\frac{1}{2}} - (x^2 - 9)(x^2 + 1)^{\frac{3}{2}}$

In Exercises 21-25, perform the operations and simplify, if possible.

21. $\frac{2x+8}{x-3} \div \frac{x^2+5x+4}{x^2-9}$ 22. $\frac{x}{x+3} + \frac{5}{x-3}$ 23. $\frac{2x+3}{x^2-7x+12} - \frac{2}{x-3}$

$$24. \frac{1 - \frac{x}{x+2}}{1 + \frac{1}{x}} \qquad 25. \frac{2x\sqrt{x^2+5} - \frac{2x^3}{\sqrt{x^2+5}}}{x^2+5}$$

In exercises 26-28, perform the indicated operations and write the result in standard form.

$$26. (6-7i)(2+5i) \qquad 27. \frac{5}{2-i} \qquad 28. 2\sqrt{-49} + 3\sqrt{-64}$$

29. Graph $y = x^2 - 4$ by letting x equal integers from -3 through 3 .

30. Find the distance between $(2,9)$ and $(6,3)$ in simplified radical form.

Answers:

1. $-7, -\frac{4}{5}, 0, 0.25, \sqrt{4}, \frac{22}{7}$ are rational numbers

2. Commutative property of addition

3. Distributive property of addition

4. 7.6×10^{-4}

5. $= 85x + 2y - 15$

6. $\frac{5y^8}{x^6}$

7. $3|r|\sqrt{2}$

8. $11\sqrt{2}$

9. $\frac{3(5-\sqrt{2})}{23}$

10. $2x\sqrt[3]{2x}$

11. $\frac{x+3}{x-2}$ $x \neq 2, 1$

12. $\frac{1}{243}$

13. $2x^3 - 13x^2 + 26x - 15$

14. $25x^2 + 30xy + 9y^2$

15. $(x-3)(x-6)$

16. $(x^2+3)(x+2)$

17. $(5x-3)(5x+3)$

18. $(6x-7)^2$

19. $(y-5)(y^2+5y+25)$

20. $\frac{x^2(x+3)(x-3)}{(x^2+1)^{\frac{3}{2}}}$

21. $\frac{2(x+3)}{x+1}$ $x \neq 3, -1, -4, -3$

22. $\frac{x^2+2x+15}{(x+3)(x-3)}$ $x \neq 3, -3$

23. $\frac{11}{(x-3)(x-4)}$ $x \neq 3, 4$

24. $\frac{2x}{x^2+3x+2}$ $x \neq 0$

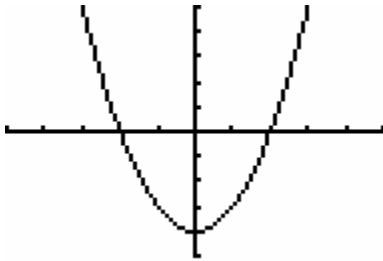
25. $\frac{10x}{\sqrt{(x^2+5)^3}}$

26. $47+16i$

27. $2+i$

28. $38i$

29.



30. $2\sqrt{13}$