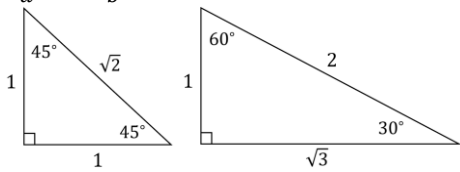


PC11 Core Review

$$y = a(x \pm b)^2 \pm c. \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}, \quad x = -\frac{b}{2a}$$

$$\frac{\sin A}{a} = \frac{\sin B}{b}, \quad c^2 = a^2 + b^2 - 2ab \cos C.$$



1. Is $\sqrt{49}$ rational or irrational?

2. Evaluate $(5x^3)^2$

3. Evaluate 2^{-4}

4. Evaluate $9^{\frac{1}{2}}$

5. Evaluate $1^{-\frac{3}{2}}$

6. Simplify $\sqrt{5} \times \sqrt{7}$

7. Expand and simplify $(\sqrt{2} - 2)^2$

8. Order from least to greatest:

$$7, 2\sqrt{7}, -5, \frac{7}{2}, \sqrt{50}$$

9. Simplify $6\sqrt{27} \div (2\sqrt{3}) - \sqrt{3}$

10. Solve $\sqrt{x+1} = 3$

11. $\sqrt{x-4} = 6-x$
a. What is the x-value of the extraneous root?

b. What is the y-value of the extraneous root?

12. What is the GCF of $27x^9y^2$ and $9x^5y^6$?

13. Factor $x^2 + 3x - 28$

14. Factor $w^2 - 64$

15. Factor $9a^2 - 16b^2$

16. Simplify $\frac{x-3}{2x^2-5x-3} \div \frac{3}{2x+1}$

17. Write as a single term $\frac{x-3}{4} - \frac{2x+1}{3}$

18. $y = \frac{x+1}{x^2-4}$. What are the non-permissible values?

19. $y = (x+1)^2 - 9$

a. (x, y) coordinates of the vertex?

b. Sketch the parabola.

c. Domain?

d. Range?

e. Equation of the line of symmetry?

f. Find the y-intercept

g. Find the x-intercepts

20. Sketch $y = -\frac{1}{2}x^2$ and label 3 points.

21. $y = x^2 + 2x - 8$

a. Complete the square on this quadratic.

b. Find the exact value of the x-intercepts.

22. You own a rectangular plot of land. You have a total of 60 feet of fence. What x and y dimensions should you choose in order to maximize area?

23. Solve $3x - 2 > -5$

24. Solve $x^2 < 25$

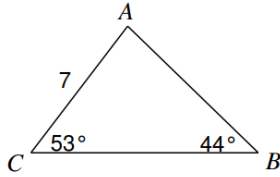
25. Solve $x^2 - 10x + 21 \leq 0$

26. Write $x \leq -3$ in interval notation using square or rounded brackets.

27. Write $-3 < x < \infty$ in interval notation using square or rounded brackets.

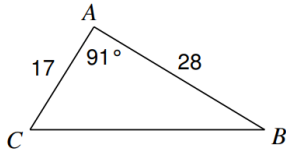
28. Find AB in the triangle below:

2) Find AB



29. Find BC in the triangle below:

3) Find BC



30. Find the two possible values of $\angle B$ given $\angle A = 35^\circ$, $a = 5$ and $b = 7$

31. $\theta = 210^\circ$

a. Sketch in standard position.

b. Find the reference angle.

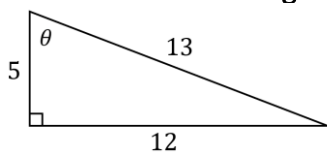
c. Find a positive co-terminal angle.

32. Evaluate $\cos 60^\circ$

33. Evaluate $\tan 135^\circ$

34. What is the equation of the unit circle?

35. Find $\cos \theta$ in the triangle below:



36. Solve $\sin A = -\frac{\sqrt{2}}{2}$, $0 \leq \theta \leq 360^\circ$

37. $A = P \left(1 + \frac{i}{n}\right)^{nt}$ is the compound interest formula. You invest \$5,000 in student loans. How much do you have in 10 years if the annual interest rate of 8% is compounded daily?
Plug in the values only. Do not evaluate the answer.