

Integrated 3 Pre-AP Summer Assignment

Complete the problems on separate paper, without using a calculator, being sure to show appropriate work. If you are not sure how to complete a problem, it is expected that you will research and learn how to complete the problem successfully. Once you have completed all problems, check your answers against the provided solutions. Please remember that these are prerequisite skills needed to be successful at Integrated 3 Pre-AP and if you “cheat” you may only cause yourself more pain later in the course when you don’t actually have these needed skills. Once school starts, you will have opportunities to ask questions or clarify as needed.

Good Luck,

Mr. Dayton

Summer Assignment

Date _____ Period _____

Convert each degree measure into radians.

1) 330°

2) -135°

Convert each radian measure into degrees.

3) $\frac{4\pi}{3}$

4) $-\frac{\pi}{2}$

Find the exact value of each trigonometric function.

5) $\tan \frac{\pi}{4}$

6) $\cos \frac{\pi}{3}$

7) $\sin \frac{\pi}{4}$

8) $\tan \frac{5\pi}{6}$

9) $\cos \frac{31\pi}{6}$

10) $\sin -\frac{19\pi}{6}$

Find the value of the trig function indicated.

11) Find $\cos \theta$ if $\sin \theta = \frac{1}{3}$

12) Find $\tan \theta$ if $\sin \theta = \frac{7}{25}$

13) Find $\cos \theta$ if $\tan \theta = \frac{8\sqrt{7}}{9}$

Factor each completely.

14) $p^2 + 8p + 16$

15) $4n^2 - 1$

16) $x^4 + 8x^2 - 20$

17) $7x^4 - 36x^2 + 5$

18) $36m^4 + 96m^2 + 28$

19) $81n^4 - 16$

20) $14n^3 + 35n^2 + 8n + 20$

21) $10k^3 + 6k^2 - 25k - 15$

22) $x^3 - 64$

23) $125x^3 + 27$

Simplify each expression.

24) $\frac{6x + 3y}{4x^2} - \frac{4x}{4x^2}$

25) $\frac{x - 6y}{36yx} + \frac{x - y}{36yx}$

26) $\frac{6}{n - 5} + \frac{4n}{7n - 7}$

27) $\frac{4}{p - 8} - \frac{8p}{p + 7}$

28) $\frac{5x}{2x + 5} - \frac{8}{x - 4}$

29) $\frac{6x}{x + 4} + \frac{2}{x + 3}$

30) $\frac{\frac{x - 3}{x^2}}{\frac{x - 3}{4}}$

31) $\frac{\frac{1}{x}}{\frac{x}{25} - \frac{3}{x}}$

Simplify each and state the excluded values.

$$32) \frac{6x^2 - 4x - 16}{6x^2 + 4x - 32} \cdot \frac{3x^2 - 16x - 64}{24x + 32}$$

$$33) \frac{-3k^2 + 20k - 12}{15k - 10} \div \frac{2k - 3}{10k - 15}$$

Simplify. Your answer should contain only positive exponents.

$$34) x^2 y^{-1} \cdot 4x^4 \cdot 2xy^{-4}$$

$$35) 4x^{-3} y^0 \cdot 3x^{-1} y^2 \cdot x^{-1} y^{-2}$$

$$36) 2x^{-\frac{5}{4}} \cdot 4x^{\frac{3}{2}} y^{\frac{3}{2}}$$

$$37) (xy^4)^{-2} \cdot (2x^{-2})^3$$

$$38) 2x^{-4} y^4 \cdot (2x^3 y^{-4})^0$$

$$39) \frac{(2x^{-4} y^{-1} \cdot 2x^4 y^4)^2}{x^{-4}}$$

$$40) \frac{(2x^3 y^4)^0}{2xy^{-2} \cdot 2x^3}$$

$$41) \frac{x^2 \cdot xy^{-1}}{\left(\frac{1}{yx^4}\right)^2}$$

Simplify.

$$42) \sqrt{12x^7}$$

$$43) \sqrt[3]{192x^6 y^2}$$

$$44) \sqrt[3]{320m^5 n^7}$$

Write each expression in radical form.

$$45) (5v)^{\frac{1}{2}}$$

$$46) (25k)^{\frac{3}{2}}$$

Write each expression in exponential form.

$$47) (\sqrt[3]{n})^2$$

$$48) (\sqrt[3]{6x})^4$$

Solve each equation. State any excluded values (if applicable).

$$49) 5x^2 - 5x + 7 = 2x + 4x^2 - 5$$

$$50) 7m^2 + 4 = -37m - 6$$

$$51) 3|8 + v| - 2 = 13$$

$$52) 4 + 6|4 - 9x| = 88$$

$$53) 16 = 6 + \sqrt{10 - 15n}$$

$$54) x - 8 = \sqrt{2x - 16}$$

$$55) \frac{2}{k} = \frac{k+1}{k} + \frac{1}{3k}$$

$$56) \frac{x+1}{2x-2} + \frac{x+6}{2} = \frac{1}{x-1}$$

$$57) -2 = -3v^{\frac{2}{3}} + 10$$

$$58) 22 = -2 + 4(3p - 12)^{\frac{1}{2}}$$

$$59) 2^{2x-1} = \frac{1}{8}$$

$$60) 4^{-3v-3} = 32^{-v+1}$$

Graph each equation.

$$61) y = 3|x - 4| - 1$$

Identify the center and radius of each. Then sketch the graph.

$$62) x^2 + y^2 - 8x + 4y + 16 = 0$$

Identify the vertex and axis of symmetry of each. Then sketch the graph.

$$63) y = -(x - 1)^2 + 4$$

$$64) y = x^2 + 2x - 2$$

Answers to Summer Assignment

1) $\frac{11\pi}{6}$

2) $-\frac{3\pi}{4}$

3) 240°

4) -90°

5) 1

6) $\frac{1}{2}$

7) $\frac{\sqrt{2}}{2}$

8) $-\frac{\sqrt{3}}{3}$

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

10) $\frac{1}{2}$

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

12) $\frac{7}{24}$

13) $\frac{9}{23}$

14) $(p+4)^2$

15) $(2n+1)(2n-1)$

16) $(x^2+10)(x^2-2)$

17) $(7x^2-1)(x^2-5)$

18) $4(3m^2+1)(3m^2+7)$

19) $(9n^2+4)(3n^2-2)(3n^2+2)$

20) $(7n^2+4)(2n+5)$

21) $(2k^2-5)(5k+3)$

22) $(x-4)(x^2+4x+16)$

23) $(5x+3)(5x^2-3x+9)$

24) $\frac{2x+3y}{4x^2}$

25) $\frac{2x-7y}{36yx}$

26) $\frac{4n^2+22n-42}{7(n-5)(n-1)}$

27) $\frac{68p+28-8p^2}{(p-8)(p+7)}$

28) $\frac{5x^2-36x-40}{(x-4)(2x+5)}$

29) $\frac{6x^2+20x+8}{(x+4)(x+3)}$

30) $\frac{4}{x^2}$

31) $\frac{25}{x^2-75}$

32) $\frac{x-8}{8}; \left\{2, -\frac{8}{3}, -\frac{4}{3}\right\}$

33) $-k+6; \left\{\frac{2}{3}, \frac{3}{2}\right\}$

34) $\frac{8x^7}{y^5}$

35) $\frac{12}{x^5}$

36) $8x^4y^2$

37) $\frac{8}{x^8y^8}$

38) $\frac{2y^4}{x^4}$

39) $16x^4y^6$

40) $\frac{y^2}{4x^4}$

41) $\frac{x^2}{y^3}$

42) $2x^3\sqrt{3x}$

43) $4x^2\sqrt[3]{3y^2}$

44) $4mn^2\sqrt[3]{5m^2n}$

45) $\sqrt{5v}$

46) $125k^3$

47) $n^{\frac{2}{3}}$

48) $(6x)^{\frac{4}{3}}$

49) $\{4, 3\}$

50) $\left\{-\frac{2}{7}, -5\right\}$

51) $\{-3, -13\}$

52) $\left\{-\frac{10}{9}, 2\right\}$

53) $\{-6\}$

54) $\{8, 10\}$

55) $\left\{\frac{2}{3}\right\}$

56) $\{-7\}$

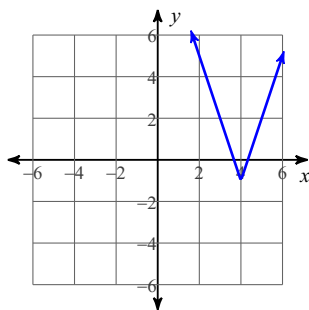
57) $\{8, -8\}$

58) $\{16\}$

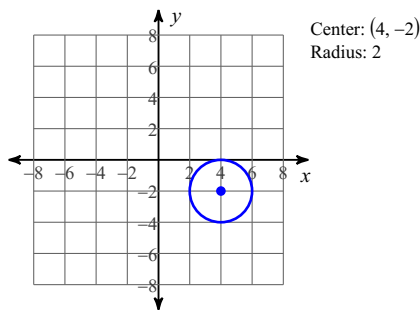
59) $\{-1\}$

60) $\{-11\}$

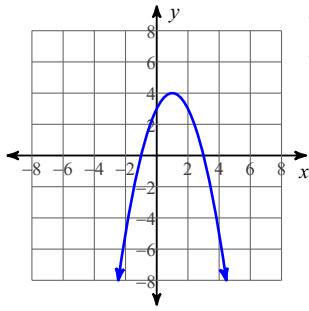
61)



62)

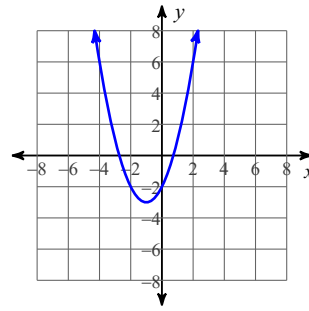


63)



Vertex: (1, 4)
Axis of Sym.: $x = 1$

64)



Vertex: (-1, -3)
Axis of Sym.: $x = -1$