

Strand 1: Review: Functions

No decimals

1. What is $f(7)$ for the functions? a. $f(x) = \frac{1}{x+2}$ b. $f(x) = \sqrt{x-3}$

$$\frac{1}{9}$$

$$2$$

2. Put the following equation into function form (solve for y): $x = 5y - 11$

$$-5y = -x - 11, y = \frac{1}{5}x + \frac{11}{5}$$

3. Solve for the y -intercept: $y = (x+3)^2$ Write your answer as a y -value only.

$$y = 9, y = (0+3)^2 = 9$$

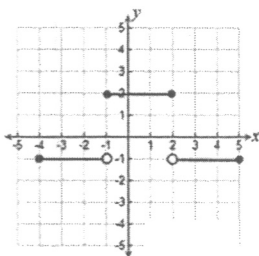
For each graph below: a) is it a function? b) why or why not? c) find $f(-1)$ using the graph

4. a. yes b. It is a Piecewise

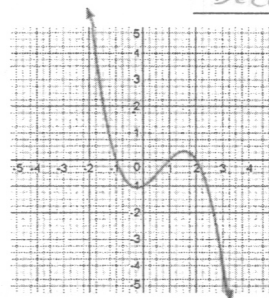
Function

5. a. yes b. It is a function

because it doesn't have more than one solution for any one x -value

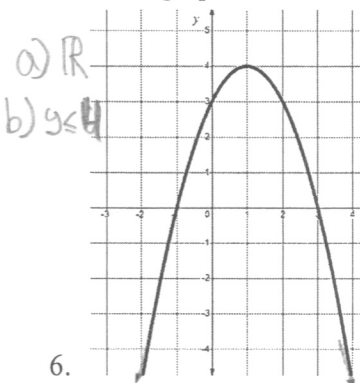


c. 2

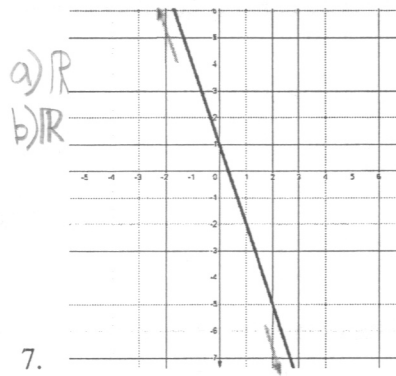


c. 0

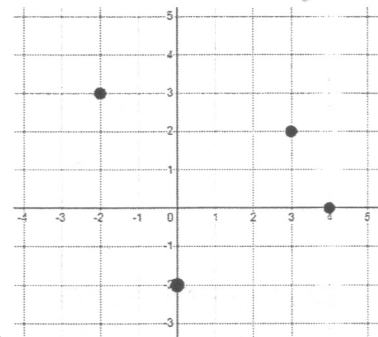
For each graph #6 to 10 below: a) what is the domain? b) what is the range?



- a) \mathbb{R}
b) $y \leq 4$



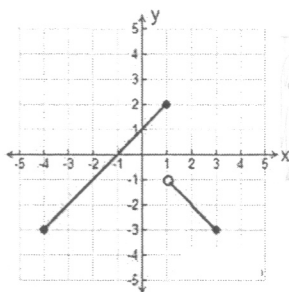
- a) \mathbb{R}
b) \mathbb{R}



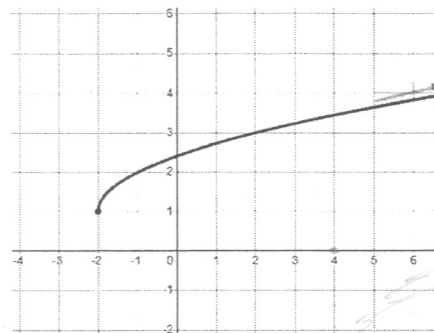
a) $x = -2, 0, 3, 4$

b) $y = 3, 2, 0, -3$

- 6 only: What is the y -value max? 4



- a) $-4 \leq x < 3$
b) $-3 \leq y \leq 2$



- a) $x \geq -2$
b) $y \geq 1$

11. Using proper notation, write the domain and range for $f(x) = \sqrt{x-4} - 3$

Domain: $x \geq 4$
Range: $y \geq -3$

Strand 1: Review: Quadratics

12. Solve for x: $x^2 - 10x + 21 = 0$
 $(x-7)(x-3) = 0$
 $x = 7, x = 3$

13. Factor completely: $3x^2 + 5x - 2$
 $(3x+1)(x-2)$
 $x_{1/2} = \frac{-5 \pm \sqrt{25 - 4(3)(-2)}}{6} = \frac{-5 \pm \sqrt{49}}{6} = \frac{-5 \pm 7}{6}$
 $\frac{-5+7}{6} = \frac{1}{3}$
 $\frac{-5-7}{6} = \frac{-12}{6} = -2$

14. Complete the square: $x^2 - 12x + \underline{\hspace{1cm}}$
 $x^2 - 12x + 36 = (x-6)^2$

15. A parabolic equation is $y = x^2 + 18x + 81$. Re-write in vertex form.
 $y = (x+9)^2$

16. Show the **set-up** for how you would use the **quadratic formula** to solve for x for $3x^2 + 4x - 2 = 0$

17. Simplify your set-up from the previous question, leaving the radical (no decimals). Show all work!
 $x_{1/2} = \frac{-4 \pm \sqrt{16 + 24}}{6}$
 $= \frac{-4 \pm \sqrt{40}}{6}$

Strand 1: Review: Simplifying Expressions

For problems 18 through 22, simplify each expression to only contain **positive** exponents.

18. $n^9 \cdot 5n^2$
 $5n^{11}$

20. $\frac{21k^7}{7k^5}$
 $3k^2$

22. $\frac{x^5 g^{-3}}{x^4 g^7} = x g^{-10} = \frac{x}{g^{10}}$

19. $3(5t)^0$
 3

21. $(9p^2)^2$
 $81p^4$

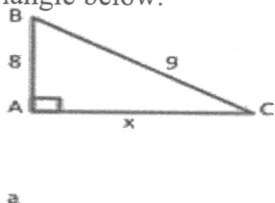
For problems 23 and 24, simplify the following radical expressions as much as possible.

23. $8^{\frac{2}{3}} \cdot 9^{\frac{3}{2}} = \sqrt[3]{8^2} \cdot \sqrt{9^3} = 4 \cdot 27 = 108$

24. $\sqrt{49x^5 y^7} = 7x^2 y^3 \sqrt{xy}$

Strand 1: Review: Trigonometry

Based on the triangle below:



25. Find $m\angle C$? 62.73°
 $\arcsin(\frac{8}{9}) \approx 62.73$

26. Solve for x: $\sqrt{17}$

27. Write the fraction for the cosine of $\angle C$:

$\frac{\sqrt{17}}{9}$

Strand 3: Function Graphs

Answer 'none' or NA if not applicable.

In the cubic graph at right:

18. Is it increasing and/or decreasing?

both Dec: $x \leq -0.25, x \geq 1.5$
Inc: $-0.25 \leq x \leq 1.5$

19. What are the x-intercept(s)?

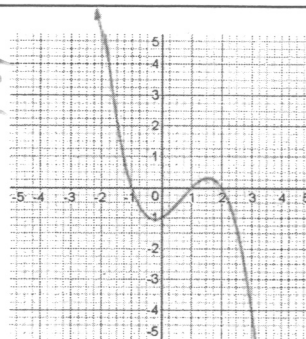
$(-1, 0), (1, 0), (2, 0)$

20. What are the y-intercept(s)?

$(0, -1)$

21. What are the endpoint(s)?

none



In the square root graph at right:

22. What is the line of symmetry?

23. Is it increasing and/or decreasing?

Increasing

24. What are the x-intercept(s)?

$(3, 0)$

25. What are the y-intercept(s)?

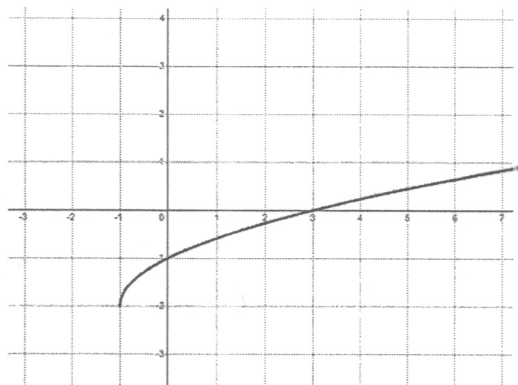
$(0, -1)$

26. What are the endpoint(s)?

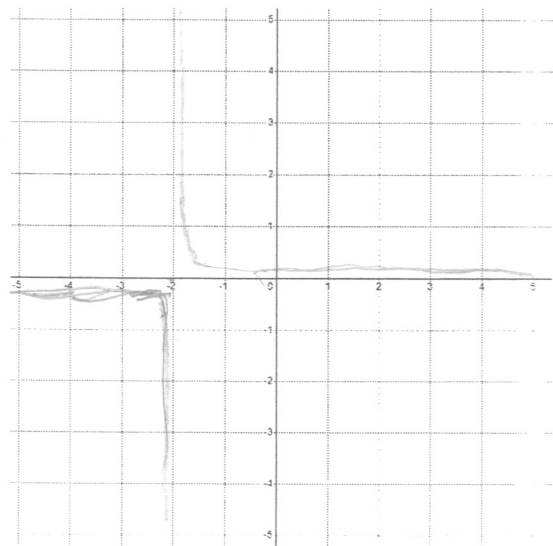
$(-1, -2)$

27. What is the horizontal asymptote?

None



28. Make a complete graph of $y = \frac{1}{x+2}$



29. Make a complete graph of $y = \frac{1}{2}|x - 3|$

