

Worksheet: Is it a function?**Mr. Chvatal****Name:** _____**Date:** _____

Determine whether these relations are functions.

1. $\{(1, 2), (1, 3), (2, 4), (2, 5)\}$

2. $\{(1, 2), (2, 2), (3, 2), (4, 2)\}$

3. $\{(0, 0)\}$

4. A circle with center at $(0, 4)$ and radius 5

5. $f(x) = 2x - 7$

6. $f(x) = 2$

7. $x = 2$

8. $f(x) = \cos x$

9. $f(x) = \tan x$

10. $f(x) = \sqrt{x}$

Worksheet: Domain and range**Mr. Chvatal****Name:** _____**Date:** _____

State the domain and range of each function.

1. $\{(-5, 3), (-6, 3), (-7, 3)\}$

2. $\{(6, 2)\}$

3. $f(x) = -3x - 4$

4. $f(x) = x$

5. $f(x) = -1$

6. $f(x) = x^3$

7. $f(x) = -3\cos x$

8. $f(x) = x^2 + 5x$

9. $f(x) = x^2 - 3x - 4$

10. $f(x) = \frac{1}{x}$

11. $f(x) = 5^x$

12. $f(x) = |x|$

13. $f(x) = |x| - 3$

14. $f(x) = |2x - 6|$

State the domain for each function.

15. $f(x) = \frac{3x}{2x+5}$

16. $f(x) = \frac{17}{x^2 - 4}$

17. $f(x) = \frac{x}{x^2 + 3x + 2}$

18. $f(x) = \frac{23x}{x^2 + 3x}$

19. $f(x) = 2\sqrt{x}$

20. $f(x) = \sqrt{x^2 - 3x - 10}$

21. $f(x) = \sqrt{x^2 + 2x - 24}$

22. $f(x) = \frac{1}{\sqrt{x-4}}$

Determine the range given a domain of $-2 \leq x \leq 3$.

23. $f(x) = -4x + 1$

24. $f(x) = 3x$

25. $f(x) = 6$

26. $f(x) = -2x^2$

27. $f(x) = (x - 4)^3$

28. $f(x) = 3^x$

29. $f(x) = x^2 - 8x - 10$

30. $f(x) = |2x - 3|$

Worksheet: Inverses**Mr. Chvatal****Name:** _____**Date:** _____

For each function, find its inverse and state whether the inverse is a function.

1. $\{(-5, 2), (-6, 2), (-7, 1)\}$

2. $\{(0, 0)\}$

3. $f(x) = 4x - 3$

4. $f(x) = 3x + 7$

5. $f(x) = -\frac{1}{4}x - \frac{3}{4}$

6. $f(x) = \frac{4}{5}x + 2$

7. $f(x) = 7$

8. $f(x) = \frac{2}{x}$

9. $f(x) = 4x^2$

10. $f(x) = x^2 + 7$

11. $f(x) = (x - 4)^3$

12. $f(x) = \frac{3x}{2x - 1}$

Worksheet: Operations and compositions with functions

Mr. Chvatal

Name: _____ Date: _____

Given the functions $f(x) = 4x^2 - 2x + 1$ and $g(x) = -5x$, find:

1. $(f + g)(x)$

2. $(f - g)(x)$

3. $(f \cdot g)(x)$

4. $\left(\frac{f}{g}\right)(x)$

Given the functions $f(x) = -x^2 + 7$ and $g(x) = x + 11$, find:

5. $(f + g)(x)$

6. $(f - g)(x)$

7. $(f \cdot g)(x)$

8. $\left(\frac{g}{f}\right)(x)$

9. $(g - f)(2)$

10. $\left(\frac{f}{g}\right)(\sqrt{3})$

Given the functions $f(x) = 3x^2 - 5x + 2$ and $g(x) = 4x$, find:

11. $(f \circ g)(x)$

12. $(g \circ f)(x)$

13. $(f \circ (f \circ g))(x)$

14. $(g \circ (g \circ g))(x)$

Given the functions $f(x) = \frac{3x}{x+1}$ and $g(x) = x^2 - 5$, find:

15. $(f \circ g)(x)$

16. $(g \circ f)(x)$

17. $(g \circ g)(x)$

18. $(f \circ f)(x)$

Evaluate:

19. $(g \circ g)(2)$

20. $(g \circ f)(0)$

Worksheet: Piecewise and step functions

Mr. Chvatal

Name: _____

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Simplify:

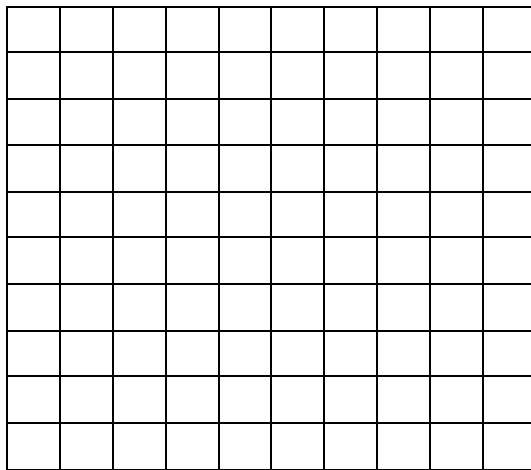
1. $\lceil -6.3 \rceil$

2. $\lfloor 2.3 \rfloor$

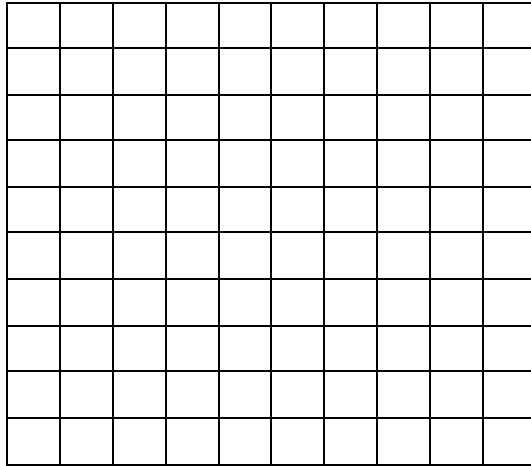
3. $\lceil -0.1 \rceil$

4. $\lfloor -5.9 \rfloor$

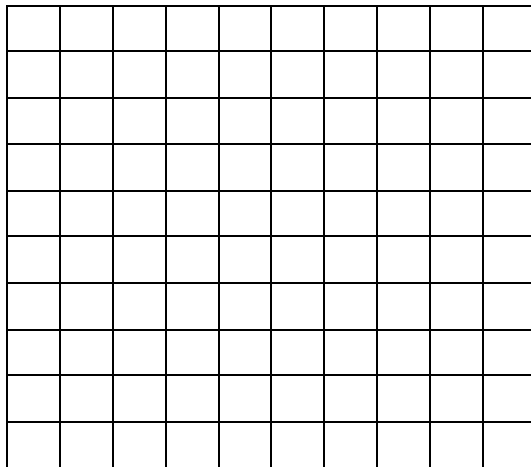
5. Please graph the step function: $f(x) = \lfloor x \rfloor - 3$



6. Please graph the function: $f(x) = \begin{cases} 2x+6 & \text{if } -5 < x < -3 \\ -\frac{1}{3}x-1 & \text{if } -3 \leq x < 3 \\ x-5 & \text{if } x \geq 3 \end{cases}$



7. Please graph the function: $f(x) = \begin{cases} \frac{1}{2}x+5 & \text{if } x \leq -2 \\ -\frac{2}{3}x-2 & \text{if } -2 < x < 0 \\ 4x-4 & \text{if } x \geq 0 \end{cases}$



8. Please create your own piecewise function below.

