Build independence

1.1 Functions, notation, domain & range

Name: _____ Date: _____

Try first. Show restrictions and reasons. Use the separate guide after your attempt.

01 / Fluency

Is {(-2,3), (0,3), (2,7)} a function? Explain.

02 / Fluency

Is {(1,2), (1,-2), (3,4)} a function? Explain.

03 / Fluency

For $f(x)=2x^2-3x+1$, find $f(-3)$.

04 / Fluency

For $g(t)=3t^2-2$, simplify $g(a-2)$.

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05 / Fluency

For $f(x)=x^2+2x$, simplify $f(x+h)$.

06 / Fluency

For $f(x)=2x^2+1$, solve $f(x)=19$.

07 / Domains

Find the largest real domain of $5/(x-7)$.

08 / Domains

Find the largest real domain of $\sqrt{(9-x)}$.

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09 / Domains

Find the largest real domain of $(x+1)/(x^2-9)$.

10 / Domains

Find the largest real domain of $\sqrt{(2x+6)}/(x-4)$.

11 / Domains

Find the largest real domain of $1/\sqrt{(2x-6)}$.

12 / Domains

Find the domain of $\sqrt{(5-x)}/(x+2)$.

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13 / Ranges

Find the domain and range of $(x+3)^2-5$ on its largest real domain.

14 / Ranges

Find the domain and range of $\sqrt{(x-5)}+2$.

15 / Ranges

Find the range of $(x-2)^2-4$ for $0 \le x \le 3$.

16 / Ranges

Find the range of $(x+2)^2+1$ for $-4 \le x \le 1$.

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17 / Ranges

Find the range of $3-(x-1)^2$ for $-1 \le x \le 4$.

18 / Ranges

Find the largest real domain and range of $2+1/(x-3)$.

19 / Model and justify

Tickets cost $15 and capacity is 60. Let $R(n)=15n$. State the contextual domain and range.

20 / Model and justify

A tank starts with 120 liters and drains at 3 liters/minute. Model it until empty and state domain and range.

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21 / Model and justify

Bike hire costs $C(h)=15+8h$ for any duration from 0.5 to 6 hours. State domain and range with units.

22 / Model and justify

A student cancels $x-3$ in $(x^2-9)/(x-3)$ and writes domain $\mathbb{R}$. Correct the claim and find the range.

23 / Challenge

Find the domain and range of $\sqrt{(x-1)}/(x-1)$.

24 / Challenge

Find the domain and range of $\sqrt{(9-x^2)}$. Justify both endpoints.