

**EXPONENTIAL FUNCTIONS**

**Classify each example as a linear, quadratic, or exponential function.**

1. $y = 2x + 3$ Lin / Quad / Exp	2. $y = 3^x$ Lin / Quad / Exp	3. $y = x^2 + 3$ Lin / Quad / Exp	4. $y = 3x^2 + 2$ Lin / Quad / Exp
5. $y = (0.3)^x + 2$ Lin / Quad / Exp	6. $y = \frac{1}{2}x + 3$ Lin / Quad / Exp	7. $y = 3x$ Lin / Quad / Exp	8. $y = \left(\frac{1}{2}\right)^x$ Lin / Quad / Exp

**Determine the domain, range, and asymptote of the following functions.**

<p>9.</p> <p>D: _____ R: _____ Asymptote: _____ Increasing / Decreasing</p>	<p>10.</p> <p>D: _____ R: _____ Asymptote: _____ Increasing / Decreasing</p>	<p>11.</p> <p>D: _____ R: _____ Asymptote: _____ Increasing / Decreasing</p>
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**State whether the given function is increasing or decreasing.**

12. $f(x) = 3^x$  Increasing / Decreasing	13. $f(x) = \left(\frac{1}{5}\right)^x$  Increasing / Decreasing
14. $f(x) = \left(\frac{3}{2}\right)^x$  Increasing / Decreasing	15. $f(x) = (1 - 0.6)^x$  Increasing / Decreasing

For each function, answer the following.

16.  $f(x) = 25(2)^x$

Lin / Quad / Exp

Increasing / Decreasing

$f(7) = \underline{\hspace{2cm}}$

When  $f(x) = 25600$ ,  $x = \underline{\hspace{2cm}}$

17.  $f(x) = 2x + 25$

Lin / Quad / Exp

Increasing / Decreasing

$f(-2) = \underline{\hspace{2cm}}$

When  $f(x) = 45$ ,  $x = \underline{\hspace{2cm}}$

Review. Show all work.

18. Simplify the expression

$(4x^2 + 5) - (3x - 2) + 3 + (x^2 + 8x)$

19. Solve for x:  $2(x - 4) + 5 = 3x - 1$

20. Factor  $12x^2 - 24$ .

21. Factor  $2x^2 + 12x + 18$ .

22. The graph of a line is shown below.

If the slope of this line is multiplied by -1 and the y-intercept decreases by 2 units, which linear equation represents these changes?

F.  $y = -2x + 1$

H.  $y = -x - 1$

G.  $y = -x + 1$

J.  $y = -\frac{1}{2}x - 1$

