

Practice Test 1 - Essay.

Wednesday, February 14, 2018

11:44 AM

$$\begin{aligned} \textcircled{13} \quad 3x^3 + 4x^2 &= 27x + 36 \\ 3x^3 + 4x^2 - 27x - 36 &= 0 \\ x^2(3x+4) - 9(3x+4) &= 0 \\ (x^2 - 9)(3x+4) &= 0 \\ (x-3)(x+3)(3x+4) &= 0 \\ \boxed{x=3}; \quad \boxed{x=-3}; \quad \boxed{x=-\frac{4}{3}} \end{aligned}$$

Solution set : $\left\{ 3, -3, -\frac{4}{3} \right\}$.

$$\begin{aligned} \textcircled{14} \quad f(x) &= 3x - 7 \\ \frac{f(x+h) - f(x)}{h} &= \frac{\overbrace{[3(x+h) - 7]}^{f(x+h)} - \overbrace{[3x - 7]}^{f(x)}}{h} \\ &= \frac{\cancel{3x} + 3h - \cancel{7} - \cancel{3x} + \cancel{7}}{h} = \frac{3h}{h} = \boxed{3}. \end{aligned}$$

$$(15) f(x) = x^2 - 3$$

$$f(x+4) = (x+4)^2 - 3$$

$$= x^2 + 8x + 16 - 3$$

$$= x^2 + 8x + 13$$

$$(16) \text{ Slope} = -\frac{1}{6} \text{ b/c parallel}$$

$$\text{Point-Slope Equation: } y - 4 = -\frac{1}{6}(x - 5)$$

$$y - 4 = -\frac{1}{6}x + \frac{5}{6}$$

$$y = -\frac{1}{6}x + \frac{5}{6} + 4$$

$$\boxed{y = -\frac{1}{6}x + \frac{29}{6}}$$

Transformation

(17)

x	y = x ²	Key points	
-2	4	(-2, 4)	→ (-6, 3)
-1	1	(-1, 1)	→ (-5, 6)
0	0	(0, 0)	→ (-4, 7)
1	1	(1, 1)	→ (-3, 6)
2	4	(2, 4)	→ (-2, 3)

let $f(x) = x^2$, then $h(x) = -f(x+4) + 7$
 (4 left, reflect across x, up 7)

