1) What is the minimum of $f(x) = 4x^2 - 40x + 630$

Graph on Desmos

2) Switch $\log_4 8 = x$ into exponential form.

base exp

$4^x = 8$

3) Switch $8^2 = 64$ into log form.

base exp

$\log_8 64 = 2$

④ Solve $2^{(2x-3)} = 32$

Type into Desmos

$x =$

$2x - 3 = 5$

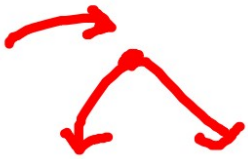
$+3 \quad +3$

$2x = 8$

$\underline{\underline{x = 4}}$

⑤ Graph $f(x) = -2x^2 - 8x + 3$

vertex



① $8x^2 - 10x - 3$

AC = −24
MULT

B = −10
ADD

$$\left(x - \frac{12}{8}\right)\left(x + \frac{2}{8}\right)$$

DIVIDE
BY A

$$\left(x - \frac{3}{2}\right)\left(x + \frac{1}{4}\right)$$

$$(2x - 3)(4x + 1)$$

② Graph on Desmos

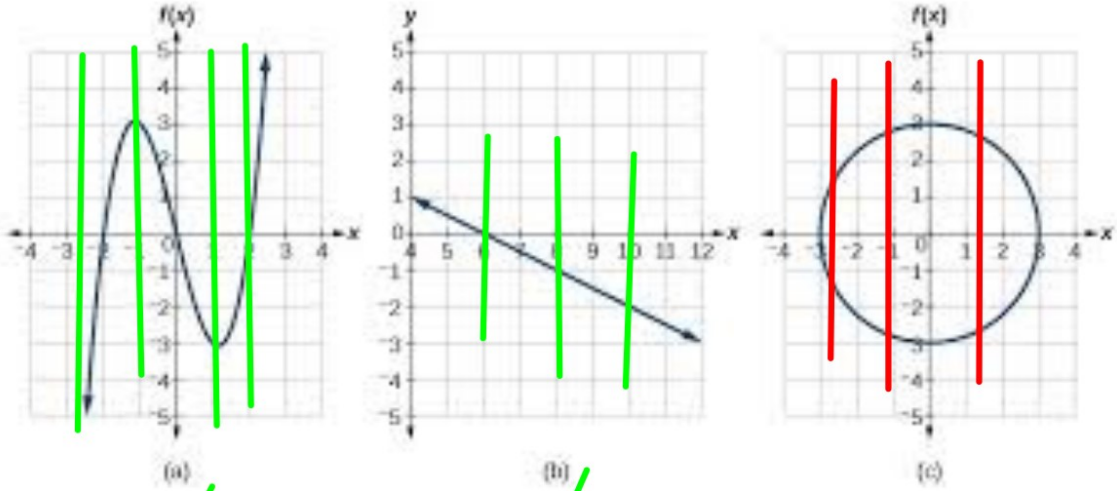
$x = -3$

$x = 8$

③ $$\frac{x^2-9}{x^2+8x+15} = \frac{\cancel{(x+3)}(x-3)}{\cancel{(x+3)}(x+5)}$$

$$= \frac{x-3}{x+5}$$

4



(a)

(b)

5 Domain → x

Range → y

Domain

(2, 3, -4, 1)

6 $f(x) + g(x)$

$(-5 + 6x) + (4x - 8)$

$\boxed{10x - 13}$

7 $\cdot\ f(-3) = -15$

$\cdot\ g(-3) = 5$

$\frac{-15}{5} = \boxed{-3}$

(8) $\sqrt{72x^4y}$

$\sqrt{\cancel{36}\cdot 2\,\cancel{x^4}\,y}$

$\boxed{6x^2\sqrt{2y}}$

4
9
16
25
36
49
64
⋮
1

(9) $(5+\sqrt{5})(3+4\sqrt{5}) = 15 + 20\sqrt{5} + 3\sqrt{5} +$

$= 15 + 23\sqrt{5} + 4(5)$

$= 15 + 23\sqrt{5} + 20$

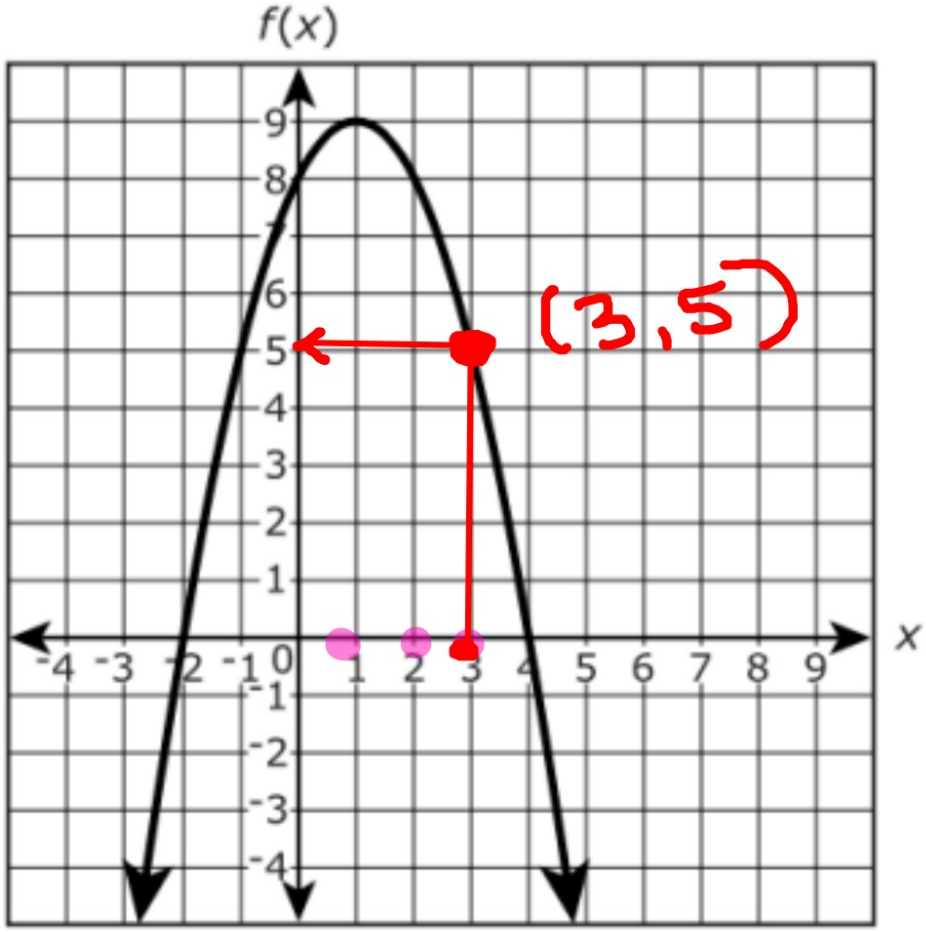
$\boxed{35 + 23\sqrt{5}}$

(10) $\sqrt{4x+9}^{\,2} = 11^2$

$$4x + \cancel{9} = 121$$
$$-\cancel{9} \qquad -9$$

$$\frac{\cancel{4}x}{\cancel{4}} = \frac{112}{4}$$

$$\boxed{x = 28}$$



$f(\overset{x}{3}) = 5$

(12) $(3-2i)(6-4i)$

$i^2 = -1$

$= 18 - 12i - 12i + 8i^2$

$= 18 - 24i + 8(-1)$

$= 18 - 24i - 8$

$= \boxed{10 - 24i}$

$-12 - 12$
$= -24$

$-12 + -12$

(13) $\sqrt{(x+6)^{\cancel{2}}} = \sqrt{8}$

$\sqrt{8}$

$\sqrt{4}\sqrt{2}$

$2\sqrt{2}$

$x + 6 = \sqrt{8}$

$x + \cancel{6} = 2\sqrt{2}$

$\cancel{-6} \qquad -6$

$$\begin{cases} x = 2\sqrt{2} - 6 \\ \text{OR} \\ x = -6 + 2\sqrt{2} \end{cases}$$

SAME