

For the polynomial function find the following: (i) Degree of the polynomial; (ii) All x intercepts; (iii) The y intercept.

1) $y = (x + 6)(x + 7)(x + 8)$

1) _____

A) (i) 3

(ii) -6, -7, -8

(iii) -56

B) (i) 3

(ii) 6, 7, 8

(iii) 56

C) (i) 3

(ii) -6, -7, -8

(iii) 336

D) (i) 3

(ii) 6, 7, 8

(iii) 336

2) $y = x^2 + 6x - 40$

2) _____

A) (i) 2

(ii) -10, 4

(iii) -40

B) (i) 2

(ii) -10, 1

(iii) -40

C) (i) 2

(ii) 10, -4

(iii) -40

D) (i) 2

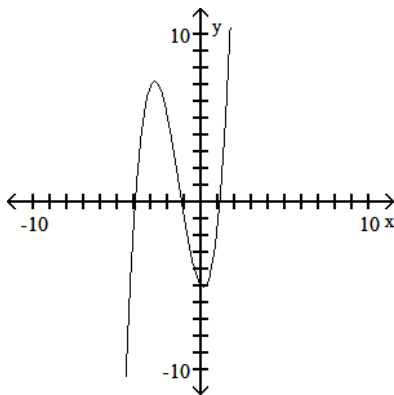
(ii) 10, 4

(iii) -40

The graph that follows is the graph of a polynomial function. (i) What is the minimum degree of a polynomial function that could have the graph? (ii) Is the leading coefficient of the polynomial negative or positive?

3) _____

3) _____



A) (i) 3

(ii) Negative

B) (i) 3

(ii) Positive

C) (i) 2

(ii) Positive

D) (i) 2

(ii) Negative

For the rational function below (i) Find the intercepts for the graph; (ii) Determine the domain; (iii) Find any vertical or horizontal asymptotes for the graph; (iv) Sketch any asymptotes as dashed lines. Then sketch the graph of $y = f(x)$.

4) $f(x) = \frac{x + 2}{x + 1}$

5) $f(x) = \frac{3x}{x - 2}$

6) $f(x) = \frac{-2x - 3}{x + 2}$

7) $y = \frac{6}{x^2 - 1}$

Answer Key

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1) C

2) A

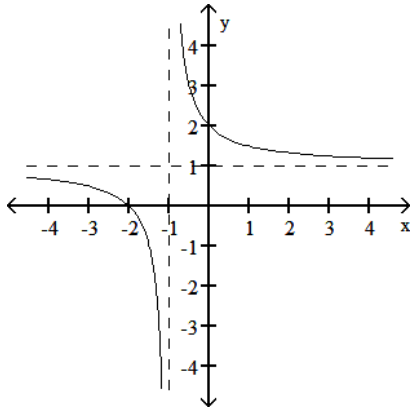
3) B

4) (i) x intercept: -2; y intercept: 2

(ii) Domain: all real numbers except -1

(iii) Vertical asymptote: $x = -1$; horizontal asymptote: $y = 1$

(iv)

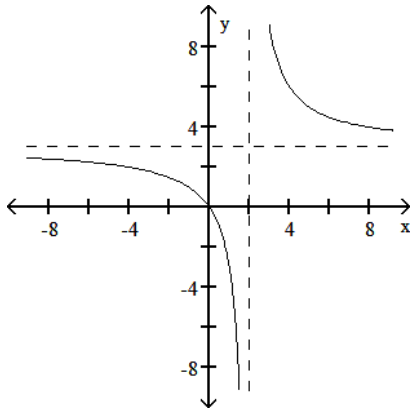


5) (i) x intercept: 0; y intercept: 0

(ii) Domain: all real numbers except 2

(iii) Vertical asymptote: $x = 2$; horizontal asymptote: $y = 3$

(iv)



Answer Key

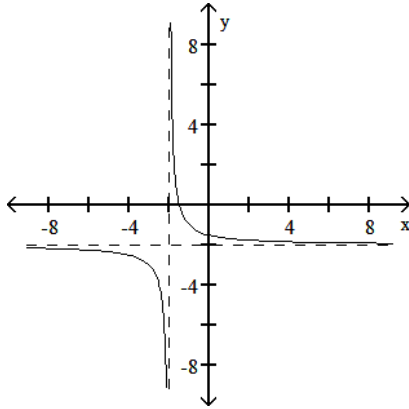
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6) (i) x intercept: $-\frac{3}{2}$; y intercept: $-\frac{3}{2}$

(ii) Domain: all real numbers except -2

(iii) Vertical asymptote: $x = -2$; horizontal asymptote: $y = -2$

(iv)



7) (i) y intercept: - 6

(ii) horizontal asymptote: $y = 0$; vertical asymptotes: $x = 1$ and $x = -1$

(iii)

