

Name \_\_\_\_\_

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

**Solve the polynomial equation by factoring.**

1)  $-9x^4 + 6x^3 + 8x^2 = 0$

A)  $-\frac{2}{3}, \frac{4}{3}, 0$

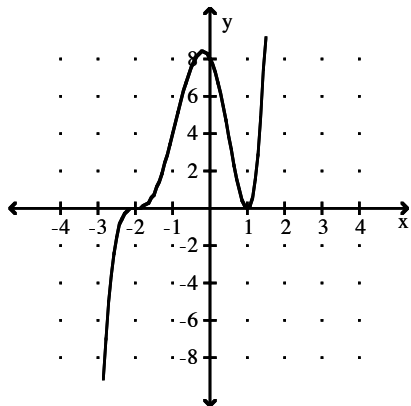
B)  $\frac{2}{3}, \frac{4}{3}, 0$

C)  $-\frac{2}{3}, -\frac{4}{3}$

D)  $\frac{2}{3}, -\frac{4}{3}, 0$

**Use the graph of the polynomial function  $f(x)$  to solve  $f(x) = 0$ .**

2)



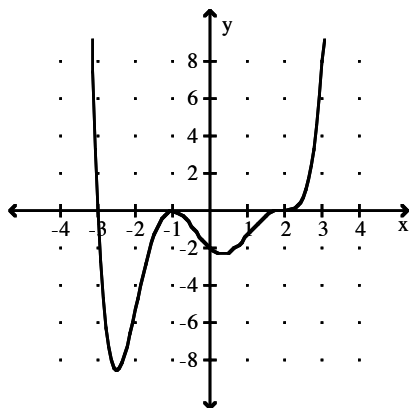
A) -2, 0, 1

B) -2, 1, 8

C) -1, 2

D) -2, 1

3)



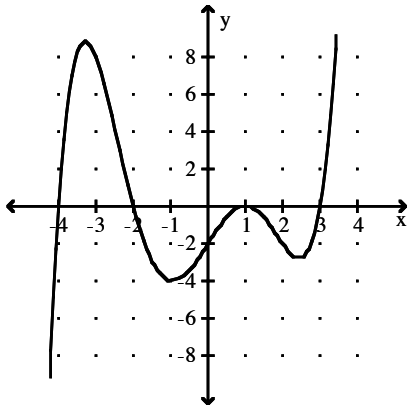
A) -3, -1, 2

B) 1, 2, 3

C) -2, 1, 3

D) -3, 2

4)



A) -3, -1, 2, 4

B) -4, -2, 3

C) -3, 2, 4

D) -4, -2, 1, 3

**Solve the polynomial equation by factoring.**

5)  $x^4 - 256 = 0$

A) 32, -32

B) 4, -4

C) 16, -16

D) 8, -8

**Solve the problem.**

6) Suppose a business can sell  $x$  gadgets for  $p = 250 - 0.01x$  dollars apiece, and it costs the business  $c(x) = 1000 + 25x$  dollars to produce the  $x$  gadgets. Determine the production level and cost per gadget required to maximize profit.

A) 111 gadgets at \$248.89 each

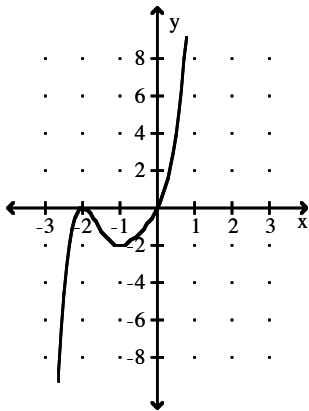
B) 10,000 gadgets at \$150.00 each

C) 11,250 gadgets at \$137.50 each

D) 13,750 gadgets at \$112.50 each

**Use the graph of the polynomial function  $f(x)$  to solve  $f(x) = 0$ .**

7)



A) 0

B) -2, 0

C) -2

D) 0, 2

**Solve the polynomial equation by factoring.**

8)  $x^3 - 16x = 0$

A) 0, 4, -4

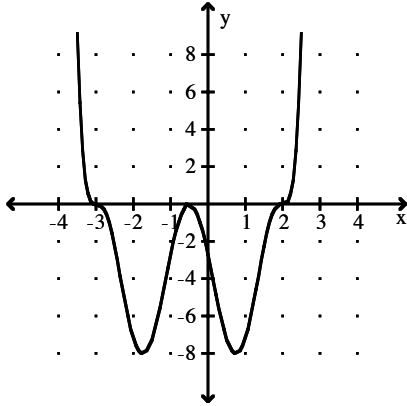
B) 0, 8, -8

C) 8, -8

D) 4, -4

Use the graph of the polynomial function  $f(x)$  to solve  $f(x) = 0$ .

9)



A) -3, 2

B) -2, 3

C)  $-3, -\frac{1}{2}, 2$

D)  $-2, \frac{1}{2}, 3$

Solve the polynomial equation by factoring.

10)  $x^3 + 6x^2 - x - 6 = 0$

A) 1, -1, -7

B) 1, -2, 8

C) 1, -1, 6

D) 1, -1, -6

Solve the polynomial equation by using the root method.

11)  $\frac{1}{8}x^4 - 512 = 0$

A) 8, 0

B) 8

C) -8

D) 8, -8

Solve the polynomial equation by factoring.

12)  $x^3 + 5x^2 + 6x = 0$

A) 3, 2

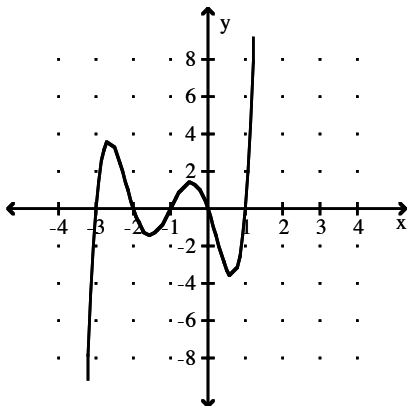
B) -3, -2

C) 0, -3, -2

D) 0, 3, 2

Use the graph of the polynomial function  $f(x)$  to solve  $f(x) = 0$ .

13)



A) -1, 1, 2, 3

B) -1, 0, 1, 2, 3

C) -3, -2, -1, 0, 1

D) -3, -2, -1, 1

Solve the polynomial equation by factoring.

14)  $x^3 - 3x^2 - x + 3 = 0$

A) 1, -2, 5

B) 1, -1, -4

C) 1, -1, 3

D) 1, -1, -3

15)  $4x^3 - 20x^2 - x + 5 = 0$

A)  $\frac{1}{2}, -\frac{1}{2}, 5$

B)  $-\frac{1}{2}, -\frac{1}{2}, 5$

C)  $2, -2, 5$

D)  $1, -1, 5$

**Solve the problem.**

16) If the price for a product is given by  $p = 4900 - x^2$ , where  $x$  is the number of units sold, then the revenue is given by  $R = px = 4900x - x^3$ . How many units must be sold to give zero revenue?

A) 4900

B) 0, 4900

C) 0

D) 0, 70

**Solve the polynomial equation by factoring.**

17)  $x^3 - 8x^2 + 9x + 18 = 0$

A) 4, 7, -1

B) -3, -6, 0

C) -4, -7, 1

D) 3, 6, -1

18)  $2x^3 - 4x^2 - 2x + 4 = 0$

A) -1, 1, -2

B) 1, -1, 2

C) 1, 2

D) -1, 2

**Solve the problem.**

19) The Cool Company determines that the supply function for its basic air conditioning unit is  $S(p) = 40 + 0.008p^3$  and that its demand function is  $D(p) = 200 - 0.16p^2$ , where  $p$  is the price. Determine the price for which the supply equals the demand.

A) \$22.36

B) \$21.86

C) \$22.86

D) \$21.36

**Solve the polynomial equation by using the root method.**

20)  $\frac{1}{3}x^3 + 9 = 0$

A) 3, -3

B) 3, 0

C) 3

D) -3