

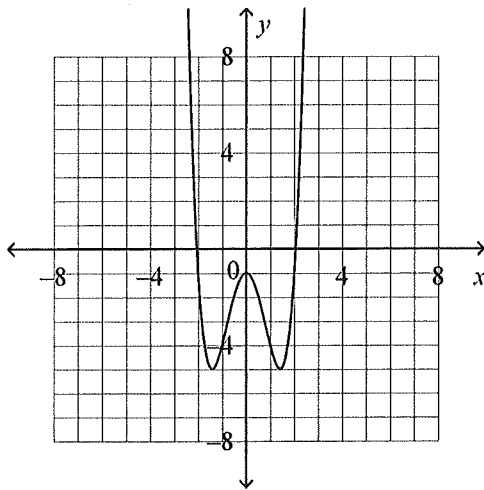
Polynomials Midterm Review Quiz**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

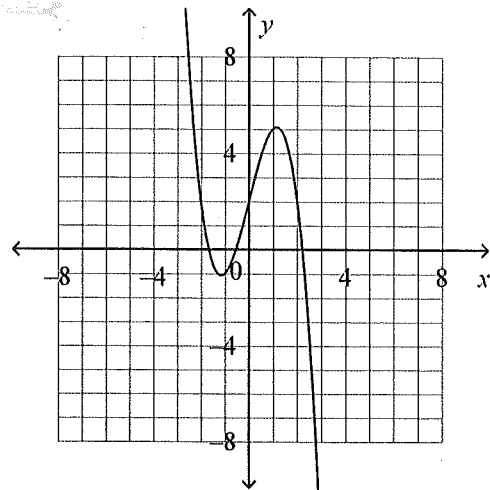
- _____ 1. Divide: $(4x^2 - 49y^2) \div (2x + 7y)$
- A. $2x + 7y$ B. $-2x + 7y$ C. $2x - 7y$ D. $-2x - 7y$
- _____ 2. What is the remainder when $x^3 + 4 - 11x + 3x^2$ is divided by $6 + x$?
- A. 70 B. -62 C. -38 D. 46
- _____ 3. Divide $-3x^3 - 2x^2 + 4x + 3$ by $x + 3$. Write the division statement.
- A. $-3x^3 - 2x^2 + 4x + 3 = (x + 3)(-3x^2 - 11x + 25)$
B. $-3x^3 - 2x^2 + 4x + 3 = (x + 3)(-3x^2 - 11x + 25) - 48$
C. $-3x^3 - 2x^2 + 4x + 3 = (x + 3)(-3x^2 + 7x - 17)$
D. $-3x^3 - 2x^2 + 4x + 3 = (x + 3)(-3x^2 + 7x - 17) + 54$
- _____ 4. Which polynomial has $x + 3$ as a factor?
- A. $x^3 - 12x^2 + 37x$ C. $x^3 - 9x^2 + x$
B. $x^3 - 9x^2 - 12x + 37$ D. $x^3 - 9x^2 + x + 111$
- _____ 5. When $4x^3 + qx^2 + 11x - 20$ is divided by $x - 3$, the remainder is 4. What is the value of q ?
- A. -5 B. -13 C. -11 D. -28
- _____ 6. Which statements are always true for the graph of a cubic function?
- i) When the graph has exactly 1 x -intercept, the graph has no hills and no valleys.
ii) When the graph has 2 or 3 x -intercepts, the graph has 1 hill and 1 valley.
iii) When the x^3 -term is positive, the graph falls to the left and rises to the right.
iv) When the x^3 -term is negative, the graph rises to the left and falls to the right.
- A. i, ii, iv B. i, iii, iv C. i, ii, iii D. ii, iii, iv
- _____ 7. Which type of polynomial function is $f(x) = -2x^5 - 3x^4 - 3x^2 + 6$?
- A. cubic C. quartic
B. quadratic D. quintic

8. Identify the graph that corresponds to the function $f(x) = -x^5 + 5x^3 - 2x$.

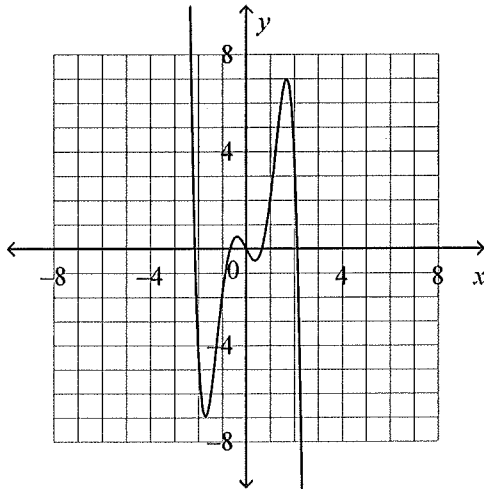
A.



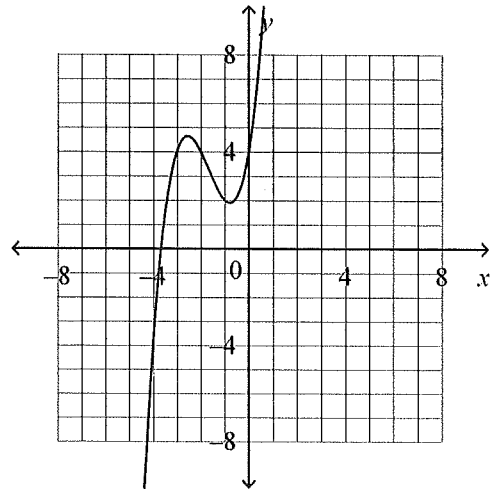
C.



B.



D.



9. A carton of juice in the shape of a rectangular prism has dimensions 5.2 cm by 5.2 cm by 9.4 cm. The manufacturer wants to design a carton with double the capacity by increasing each dimension by x centimetres. Which equation could be used to determine the value of x ?

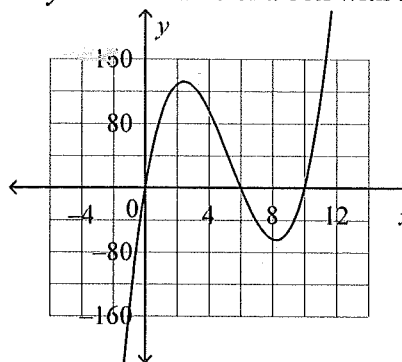
A. $508.352 = (5.2 - x)^2(9.4 - x)$

C. $508.352 = (5.2 + x)^2(9.4 + x)$

B. $254.176 = (5.2 + x)^2(9.4 + x)$

D. $254.176 = (5.2 - x)^2(9.4 - x)$

10. Here is the graph of $y = 2x(10-x)(6-x)$. Suppose y is the volume of a box with a top. The box is made from a piece of cardboard 20 cm long and 12 cm wide. Squares of side length x centimetres are cut from the corners of the cardboard to make a net for the box.



Which statements are correct?

- i) The minimum volume is approximately 65 cm^3 .
 - ii) The maximum volume is approximately 131 cm^3 .
 - iii) The volume is 0 when x is approximately 8.2 cm.
 - iv) The maximum volume occurs when x is approximately 2.4 cm.
- A. i, ii, iii B. i, ii, iv C. iii, iv D. ii, iv

Polynomials Midterm Review Quiz

Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 0 DIF: Easy
REF: 1.1 Dividing a Polynomial by a Binomial LOC: 12.RF11
TOP: Relations and Functions KEY: Conceptual Understanding | Procedural Knowledge
2. ANS: C PTS: 0 DIF: Moderate
REF: 1.1 Dividing a Polynomial by a Binomial LOC: 12.RF11
TOP: Relations and Functions KEY: Conceptual Understanding | Procedural Knowledge
3. ANS: D PTS: 0 DIF: Moderate
REF: 1.1 Dividing a Polynomial by a Binomial LOC: 12.RF11
TOP: Relations and Functions KEY: Conceptual Understanding | Procedural Knowledge
4. ANS: D PTS: 0 DIF: Easy REF: 1.2 Factoring Polynomials
LOC: 12.RF11 TOP: Relations and Functions
KEY: Conceptual Understanding | Procedural Knowledge
5. ANS: B PTS: 0 DIF: Moderate REF: 1.2 Factoring Polynomials
LOC: 12.RF11 TOP: Relations and Functions
KEY: Conceptual Understanding | Problem-Solving Skills
6. ANS: D PTS: 0 DIF: Moderate REF: 1.3 Graphing Polynomial Functions
LOC: 12.RF12 TOP: Relations and Functions KEY: Conceptual Understanding
7. ANS: D PTS: 0 DIF: Easy
REF: 1.4 Relating Polynomial Functions and Equations LOC: 12.RF12
TOP: Relations and Functions KEY: Conceptual Understanding
8. ANS: B PTS: 0 DIF: Moderate LOC: 12.RF12
REF: 1.4 Relating Polynomial Functions and Equations
TOP: Relations and Functions KEY: Conceptual Understanding | Procedural Knowledge
9. ANS: C PTS: 0 DIF: Moderate
REF: 1.5 Modelling and Solving Problems with Polynomial Functions
LOC: 12.RF12 TOP: Relations and Functions
KEY: Procedural Knowledge | Problem-Solving Skills
10. ANS: D PTS: 0 DIF: Moderate
REF: 1.5 Modelling and Solving Problems with Polynomial Functions
LOC: 12.RF12 TOP: Relations and Functions
KEY: Conceptual Understanding | Procedural Knowledge