

SOL Warm-Up
Graphing Calculator Active

A.2c (a) Factoring polynomials

1. Which of the following represents $12x^2 + 6x + 3$ in simplified form after factoring out the greatest common factor?
 - A $12(x^2 + 2x + 4)$
 - B $x(12x^2 + 6x + 3)$
 - C $3(4x^2 + 2x + 1)$
 - D $2(6x^2 + 3x + 1)$

2. Which of the following represents $4x^3 + 8x^2 + 12x$ in factored form after factoring out the greatest common factor?
 - A $4(x^3 + 2x^2 + 3x)$
 - B $2x(2x^2 + 4x + 6)$
 - C $4(x^3 + 8x^2 + 12x)$
 - D $4x(x^2 + 2x + 3)$

3. Which of the following represents $9a^2b^4 + 18a^3b^2$ in factored form after factoring out the greatest common factor?
 - A $9a^2b^2(b^2 + 2a)$
 - B $3ab(3ab^2 + 6a^2b)$
 - C $9a^3b^4(1 + 2ab)$
 - D $6a^2b^2(3b^2 + 3a)$

4. Which of the following represents $2x^2 - 2x$ in factored form after factoring out the greatest common factor?
 - A $2(x^2 - x)$
 - B $x(2x - 2)$
 - C $2x(x - 1)$
 - D $2x^2(1 - x)$

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A.2c (b) Factoring polynomials

1. Which of the following expresses $x^2 + 7x - 30$ in simplified factored form?
A $(x - 3)(x + 10)$
B $(x + 3)(x - 10)$
C $(x - 6)(x + 5)$
D $(x + 6)(x - 5)$

2. Which of the following expresses $x^2 + x - 12$ in simplified factored form?
A $(x - 3)(x + 4)$
B $(x + 3)(x - 4)$
C $(x + 1)(x + 12)$
D $(x + 6)(x + 2)$

3. Which of the following expresses $2x^2 + 9x + 10$ in simplified factored form?
A $(2x - 2)(x + 5)$
B $(2x - 5)(x - 2)$
C $(2x + 1)(x + 10)$
D $(2x + 5)(x + 2)$

4. Which of the following expresses $2x^2 - 50$ in simplified factored form?
A $2(x - 1)(x + 5)$
B $2(x - 5)(x + 5)$
C $(2x + 5)(x + 10)$
D $(2x - 5)(x - 10)$

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A.2c (c) Factoring polynomials

1. Which of the following expresses $x^2 + 7x + 12$ in simplified factored form?

A $(x + 3)(x + 4)$

B $(x - 3)(x - 4)$

C $(x + 6)(x + 2)$

D $(x + 5)(x + 2)$

2. Which of the following expresses $4x^2 + 7x + 3$ in simplified factored form?

A $(2x + 1)(2x + 3)$

B $(4x + 3)(x + 1)$

C $(4x + 1)(x + 3)$

D $(x + 7)(x + 4)$

3. Which of the following expresses $x^2 - 64$ in simplified factored form?

A $(x - 8)(x + 8)$

B $(x + 4)(x - 16)$

C $(x - 4)(x + 16)$

D $(x + 64)(x - 1)$

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A.2c (d) Factoring polynomials

1. The area of a rectangle is calculated by multiplying the length by the width. If the area of a rectangle is $x^2 + 11x + 10$, which of the following could be the length of the rectangle?

- A** $x + 5$
- B** $x + 1$
- C** $x + 11$
- D** $x - 5$

2. The area of a rectangle is calculated by multiplying the length by the width. If the area of a rectangle is $3x^2 - 23x - 36$, which of the following could be the length of the rectangle?

- A** $3x + 4$
- B** $3x + 12$
- C** $x + 9$
- D** $3x - 23$

3. The area of a rectangle is calculated by multiplying the length by the width. If the area of a rectangle is $2x^2 + 7x + 6$, which of the following could be the length of the rectangle?

- A** $x + 6$
- B** $x + 2$
- C** $x + 7$
- D** $2x + 7$

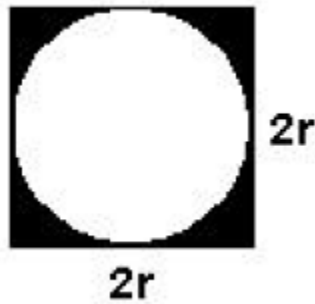
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A.2c (e) Factoring polynomials

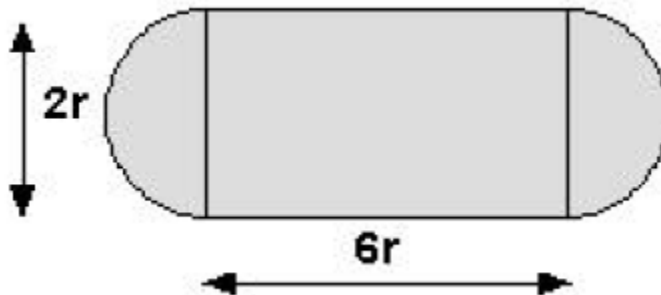
1. The area of a circle is πr^2 and the area of a rectangle is LW . Which of the following could represent the area of the shaded region in the drawing?

- A $2r(r - \pi)$
- B $4r(r - \pi)$
- C $2r^2(\pi - r)$
- D $r^2(4 - \pi)$



2. The area of a circle is πr^2 and the area of a rectangle is LW . Which of the following could represent the area of the shaded region in the drawing?

- A $\pi (r^2 + 12)$
- B $r^2(12 + \pi)$
- C $6r(\pi + 2)$
- D $6r^2(3 + 2\pi)$



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A.2c (f) Using x-intercepts to factor a polynomial

1. Which of the following represents the factored form of a polynomial with $(-2, 0)$ and $(-3, 0)$ as its x-intercepts?

A $(x + 2)(x + 3)$

B $(x - 2)(x - 3)$

C $(x + 2)(x - 3)$

D $(x - 2)(x + 3)$

2. Which of the following represents the factored form of a polynomial with $(\frac{3}{2}, 0)$ and $(-1, 0)$ as its x-intercepts?

A $(x - \frac{3}{2})(x - 1)$

B $(-x + \frac{3}{2})(x + 1)$

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

D $(2x - 3)(x - 1)$

3. Which of the following represents the factored form of a polynomial with $(0, 0)$ and $(-6, 0)$ as its x-intercepts?

A $x(x + 6)$

B $(x - 6)(x + 6)$

C $(x + 6)(x + 6)$

D $x(x - 6)$

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A.2c (a) Solving quadratic equations

1. What are the solutions of $x^2 + 5x + 6 = 0$?

- A $x = -2$ or $x = -3$
- B $x = 2$ or $x = 3$
- C $x = -6$ or $x = 1$
- D $x = -1$ or $x = 6$

2. What are the solutions of $x^2 - 15 = 2x$?

- A $x = 0$ or $x = -2$
- B $x = -5$ or $x = 3$
- C $x = 0$ or $x = 2$
- D $x = -3$ or $x = 5$

3. What are the solutions of $x^2 = 7x$?

- A $x = 0$ or $x = -7$
- B $x = 4$ or $x = 3$
- C $x = 0$ or $x = 7$
- D $x = 7$ only

4. What are the solutions of $2x^2 = x + 3$?

- A $x = -3$ or $x = 2$
- B $x = 3/2$ or $x = -1$
- C $x = 3$ or $x = -2$
- D $x = 3$ or $x = -1$

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A.4c (b) Solving quadratic equations

1. What are the solutions of $x^2 + 11x + 30 = 0$?

- A** $x = 2$ or $x = 15$
- B** $x = -5$ or $x = -6$
- C** $x = -15$ or $x = -2$
- D** $x = 6$ or $x = 5$

2. What are the solutions of $x^2 - 30 = 6$?

- A** $x = 0$ or $x = -6$
- B** $x = 6$ or $x = -6$
- C** $x = 0$ or $x = 6$
- D** $x = -6$ only

3. What are the solutions of $x^2 + x - 20 = 0$?

- A** $x = 5$ or $x = -4$
- B** $x = -5$ or $x = -4$
- C** $x = 5$ or $x = 4$
- D** $x = -5$ or $x = 4$

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A.4c (c) Solving quadratic equations

1. What are the dimensions of a rectangle if the length is 7 less than twice the width and the area is 30?

- A** 5 by 6
- B** 15 by 2
- C** 4 by 7.5
- D** 3 by 10

2. What are the dimensions of a rectangle if the length is 2 more than the width and the area is 48?

- A** 12 by 4
- B** 3 by 16
- C** 6 by 8
- D** 5.5 by 7.5

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A.4c (d) Solving quadratic equations

1. What are the dimensions of a rectangle if the length is 7 less than twice the width and the area is 72?

- A 12 by 6
- B 18 by 4
- C 10 by 7.2
- D 9 by 8

2. What are the dimensions of a rectangle if the length is 5 less than three times the width and the area is 78?

- A 6 by 13
- B 3 by 26
- C 10 by 7.8
- D 2 by 39

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A.4c (e) Identifying x-intercepts of a quadratic function

1. What are the x-intercepts of the graph of $2x^2 - 5x - 3$?

- A $(\frac{3}{2}, 0) (-1, 0)$
- B $(-\frac{1}{3}, 0) (\frac{9}{2}, 0)$
- C $(-\frac{1}{2}, 0) (3, 0)$
- D $(\frac{1}{6}, 0) (-9, 0)$

2. What are the x-intercepts of the graph of $4x^2 - 4x + 1$?

- A $(-1, 0) (\frac{1}{2}, 0)$
- B $(-1, 0) (1, 0)$
- C $(1, 0)$
- D $(\frac{1}{2}, 0)$

3. What are the x-intercepts of the graph of $9x^2 - 1$?

- A $(-\frac{1}{9}, 0) (-\frac{1}{9}, 0)$
- B $(1, 0) (-1, 0)$
- C $(\frac{1}{3}, 0)$
- D $(\frac{1}{3}, 0) (-\frac{1}{3}, 0)$