**Polynomials and Factoring Practice Test**

**MULTIPLE CHOICE**

1. Write the polynomial in standard form.

4*g* – *g*3 + 3*g*2 – 2

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| --- | --- | --- | --- |
| A. | –2 + 4*g* + 3*g*2 – *g*3 | C. | 3*g*3 – *g*2 + 4*g* – 2 |
| B. | *g*3 – 3*g*2 + 4*g* – 2 | D. | –*g*3 + 3*g*2 + 4*g* – 2 |

2. Write the perimeter of the figure.



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A. | 9*x* + 7*x* | B. | 11*x* + 3*x* + 2 | C. | 14*x* + 2 | D. | 14*x* |

**Simplify the difference.**

3. (–7*x* – 5*x*4 + 5) – (–7*x*4 – 5 – 9*x*)

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| --- | --- | --- | --- |
| A. | 2*x*4 + 2*x* + 8 | C. | –14*x*4 – 10*x* + 10 |
| B. | –14*x*4 + 10*x* + 10 | D. | 2*x*4 + 2*x* + 10 |

4. (4*w*2 – 4*w* – 8) – (2*w*2 + 3*w* – 6)

|  |  |  |  |
| --- | --- | --- | --- |
| A. | 2*w*2 – 7*w* – 2 | C. | 2*w*2 – 1*w* – 14 |
| B. | 6*w*2 – 1*w* – 14 | D. | 6*w*2 + 7*w* + 2 |

5. 7*a*3(5*a*6 – 2*b*3)

|  |  |  |  |
| --- | --- | --- | --- |
| A. | 12*a*9 – 9*a*3*b*6 | C. | 35*a*9 – 14*a*3*b*3 |
| B. | 35*a*9 – 14*ab*6 | D. | 12*a*18 – 9*a*3*b*6 |

6. 8*p*(–3*p*2 + 6*p* – 2)

|  |  |  |  |
| --- | --- | --- | --- |
| A. | –5*p*3 + 14*p*2 – 6*p* | C. | 14*p*2 – 6*p* – 5*p*3 |
| B. | 48*p*2 – 16*p* – 24*p*3 | D. | –24*p*3 + 48*p*2 – 16*p* |

**Factor the polynomial.**

7. 54*c*3*d*4 + 9*c*4*d*2

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| --- | --- | --- | --- |
| A. | 9*c*3*d*2(*d*2 + 6*c*) | C. | 9*c*4*d*2(*d*2 + 6) |
| B. | 9*c*3*d*2(6*d*2 + *c*) | D. | 9*c*4*d*2(6*d*2 + 1) |

8. Find the GCF of the terms of the polynomial.

8*x*6 + 32*x*3

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| --- | --- | --- | --- | --- | --- | --- | --- |
| A. | *x*3 | B. | 8*x*3 | C. | 8*x*3 | D. | 8*x*6 |
|  |  |  |  |  |  |  |  |

9. The Johnsons want to cover their backyard with new grass. Their backyard is rectangular, with a length of 3*x* – 5 feet and a width of 4*x* – 10 feet. However, their rectangular swimming pool, along with its surrounding patio, has dimensions of *x* + 8 by *x* – 2 feet. What is the area of the region of the yard that they want to cover with new grass?

|  |  |  |  |
| --- | --- | --- | --- |
| A. | 6*x*2 – 55*x* + 104 ft2 | C. | 11*x*2 – 56*x* + 66 ft2 |
| B. | *x*2 + 6*x* – 16 ft2 | D. | 12*x*2 – 50*x* + 50 ft2 |

10. Simplify the product using the distributive property.



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| A. |  | C. |  |
| B. |  | D. |  |

11. Find the missing coefficient.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| A. | 65 | B. | 5 | C. | –5 | D. | –65 |

12. Simplify.

(2*k* + 3)(2*k*2 – 4*k* – 3)

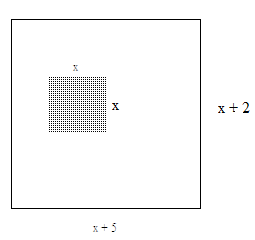
|  |  |  |  |
| --- | --- | --- | --- |
| A. | 4*k*3 + 18*k*2 – 2*k* – 9 | C. | 4*k*3 + 14*k*2 – 6*k* – 9 |
| B. | 4*k*3 – 2*k*2 + 6*k* – 9 | D. | 4*k*3 – 2*k*2 – 18*k* – 9 |

**Find the square.**

13. (4*x* – 6*y*3)2

|  |  |  |  |
| --- | --- | --- | --- |
| A. | 16*x*2 – 24*xy*3 + 36*y*6 | C. | 16*x*2 + 36*y*6 |
| B. | 16*x*2 – 48*xy*3 + 36*y*6 | D. | 16*x*2 – 4*xy*3 + 36*y*6 |

14. Find the area of the UNSHADED region. Write your answer in standard form.



**Find the product.**

15. (*j* + 7)(*j* – 7)

|  |  |  |  |
| --- | --- | --- | --- |
| A. | *j*2 + 14*j* – 49 | C. | *j*2 + 14*j* – 49 |
| B. | *j*2 – 14*j* – 49 | D. | *j*2 – 49 |

**Complete.**

16. *y*2 + 15*y* + 56 = (*y* + 7)(*y* +)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| A. | –8 | B. | 8 | C. | –7 | D. | 7 |

**Factor the expression.**

17. *w*2 + 18*w* + 77

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| --- | --- | --- | --- |
| A. | (*w* – 7)(*w* + 11) | C. | (*w* + 7)(*w* + 11) |
| B. | (*w* – 7)(*w* – 11) | D. | (*w* + 1)(*w* + 77) |

18. *k*2 + *kf* – 2*f*2

|  |  |  |  |
| --- | --- | --- | --- |
| A. | (*k* – 2*f*)(*k* + *f*) | C. | (*k* + 2*f*)(*k* + *f*) |
| B. | (*k* + 2*f*)(*k* – *f*) | D. | (*k* – 2*f*)(*k* – *f*) |

19. **

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| A. |  | C. |  |
| B. |  | D. |  |

20. *r*2 – 49

|  |  |  |  |
| --- | --- | --- | --- |
| A. | (*r* – 7)(*r* + 7) | C. | (*r* – 7)(*r* – 7) |
| B. | (*r* + 7)(*r* + 7) | D. | (*r* – 7)(*r* + 9) |

21. *k*2 – 16*h*2

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| --- | --- | --- | --- |
| A. | (*k* + 4*h*)(*k* + 4*h*) | C. | *h*2(*k* + 4)(*k* – 4) |
| B. | (*k* – 4*h2*)(*k* + 4) | D. | (*k* + 4*h*)(*k* – 4*h*) |

22. 3*x*3 + 3*x*2 + *x* + 1

|  |  |  |  |
| --- | --- | --- | --- |
| A. | *x*(3*x*2 + *x* + 1) | C. | 3*x*2(*x* + 1) |
| B. | (*x* + 3)(3*x*2 – 1) | D. | (*x* + 1)(3*x*2 + 1) |

23. 50*k*3 – 40*k*2 + 75*k* – 60

|  |  |  |  |
| --- | --- | --- | --- |
| A. | 5(2*k*2 – 3)(5*k* + 4) | C. | (2*k*2 + 15)(5*k* – 20) |
| B. | (10*k*2 – 3)(25*k* + 4) | D. | 5(2*k*2 + 3)(5*k* – 4) |

EXTRA CREDIT

**a.** Find the surface area of the cube.

**b.** Find the volume of the cube.

