TOPIC 7 TEST REVIEW NAME Key

12. Chad has two picture frames in his home. *Frame 1* is a **square** with sides of $(8x - 1)$ feet. *Frame 2* is a **rectangl** with dimensions of $(2x + 5)$ feet by $(12x)$ feet.

a. Write an expression for the area of frame 1.

Area of frame 1 $= (8x-1)(8x-1)$ sq units

or $(8x-1)^2$ sq units

b. Write an expression for the area of frame 2.

Area of frame 2 $= (2x+5)(12x)$

$= 24x^2 + 60x$ sq. units.

c. Using your **answers from parts a and b**, write the expression that represents the combined area of **both** frames.

Area of frame 1 + Area of frame 2

$(8x-1)^2 + 24x^2 + 60x = (8x)^2 - 2(8x)(1) + 1^2 + 24x^2 + 60x$

$= 64x^2 - 16x + 1 + 24x^2 + 60x$

$= \boxed{88x^2 + 44x + 1}$ sq. units.

Factor the following polynomials, write your response in factored form

13. $x^2 - 12x + 36$

$(x)^2 - 2(x)(6) + 6^2$

$(x-6)^2$

14. $49y^2 - 9$

$7y^2 - 3^2$

$= (7y)^2 - 3^2$

$= (7y-3)(7y+3)$

15. $8y^2 - 16y - 24$

$8(y^2 - 2y - 3)$

$8(y-3)(y+1)$

16. $x^2 - 2x - 35$

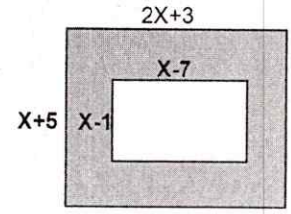
$(x-7)(x+5)$

17. $5x^2 - 9x - 2$

	x	-2
$5x$	$5x^2$	$-10x$
1	x	-2

$5x^2 - 9x - 2 = \boxed{(5x+1)(x-2)}$

18. Find the area of the shaded region.



Area of shaded region = Area of Outer Rectangle − Area of Inner Rectangle

$= (2x+3)(x+5) = 2x^2 + 8x + 15$

$-(x-7)(x-1) \quad -x^2 + 8x - 7$

$\boxed{x^2 + 16x + 8}$ sq. units.

TOPIC 7 TEST REVIEW NAME_____

1. Write $4x^3 - 6x + 9x^4 - 19 - 4x^2$ in standard form.

$9x^4 + 4x^3 - 4x^2 - 6x - 19$

2. Find the degree of $13x^8 - 15x + 7x^{13} - 9 - 7x^2$

13^{th} degree polynomial.

3. Multiply (expand). $(5y - 2)^2$

$(5y)^2 - 2(5y)(2) + 2^2 = 25y^2 - 20y + 4$

4. What is the factored form of $4x^2 + 12x - 72$?

$4(x^2 + 3x - 18)$

$= 4(x + 6)(x - 3)$

5. Factor out the *greatest common factor* from the terms of the polynomial $12x^3 - 24x^2 + 36x$.

$12x(x^2 - 2x + 3)$

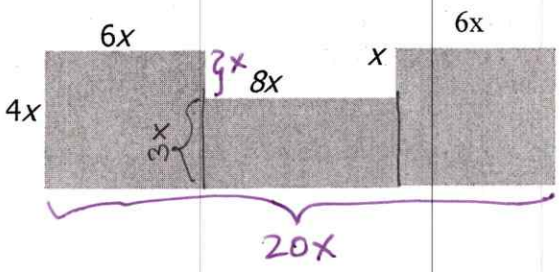
6. The area of a rectangle is $36a^9b^3$ square units. If the width of the rectangle is $4ab^3$ units, what is the rectangle's <u>length</u>?

$36a^9b^3 = 4ab^3(9a^8)$

length of rectangle is $9a^8$ units.

$4ab^3$? $36a^9b^3$

7. Write and expression for the <u>perimeter and area</u> of the shaded region below.



Perimeter $= 4x + 20x + 6x + x + 8x + x + 6x$

$= 46x$ units

Area $= (4x)(6x) + (3x)(8x) + (4x)(6x)$

Simplify and write in standard form

8. $(8x + 9x^2) - (x^2 + 6x + 8)$

$8x^2 + 2x + 8$

9. $(2n - 3)(3n + 5)$

$6n^2 + 10n - 9n - 15$

$6n^2 + n - 15$

10. $(m + 7)^2$

$m^2 + 14m + 49$

11. $(3x^3 - 5x + 12) + (9x^2 + 3x + 8)$

$3x^3 + 9x^2 - 2x + 20$