Name _____ Period _____

Unit 5 Test Review

A = Basic **B = Moderate** **C = challenging**

A

all probs on this page are [A]

1) State the property being illustrated.

a) $(5)(-2)(3) = (3)(-2)(5)$

a) commutative prop. of multiplication (change order)

b) $5(c-6) = 5c-30$

b) distributive property (two operations)

c) $(6+2)+5 = 6+(2+5)$

c) associative property of addition (change groups)

d) $-4+4=0$

d) additive inverse (opposite)

e) $(-18)(1) = -18$

e) multiplicative identity (mirror)

f) $12 \cdot \left(\frac{1}{12}\right) = 1$

f) multiplicative inverse (reciprocal)

g) $(4 \cdot 3)(9) = (3 \cdot 4)(9)$

g) Commutative property of mult. (change order)

A

2) Distribute

a) $6(x + 3) =$

a) $6x + 18$

A

b) $3a(a - 4) =$

b) $3a^2 - 12a$

A

c) $-y(y - x + 2) =$

c) $-y^2 + xy - 2y$

A

3) Combine Like Terms

a) $4x - x + 7y + 2x + 9 =$

a) $4x - x + 2x + 7y + 9 =$

$5x + 7y + 9$

B

b) $4a - 3a^2 + 2a - (a - 6) + 5a^2 =$

b) $4a - 3a^2 + 2a - (a - 6) + 5a^2 =$

$4a - 3a^2 + 2a - a + 6 + 5a^2 =$

$5a + 2a^2 + 6$

A

4) Distribute & Combine Like Terms

a) $4(c + 8) + 6(c - 2)$

a) $4(c + 8) + 6(c - 2)$

$4c + 32 + 6c - 12$

$10c + 20$

B

b) $5(y + z) + 3(6z + 2y)$

b) $5(y + z) + 3(6z + 2y)$

$5y + 5z + 18z + 6y$

$11y + 23z$

B c) $-5x + 2y(y-6) - 3y^2 + 3x =$

c) $-5x + 2y(y-6) - 3y^2 + 3x$

$-5x \quad +2y^2 - 12y - 3y^2 \quad +3x$

$\boxed{-2x - y^2 - 12y}$

C d) $\frac{3}{4}(t-8) + \frac{1}{4}(12+t) =$

d) $\frac{3}{4}(t-8) + \frac{1}{4}(12+t)$

$\frac{3}{4}t - \frac{24}{4} + \frac{12}{4} + \frac{1}{4}t = \boxed{t-3}$

$\hookrightarrow = -6 \qquad \hookrightarrow = 3$

C e) $-2[5(c+8) + 4(c-3) + 2c] =$

e) $-2[5(c+8) + 4(c-3) + 2c]$

$-2[5c + 40 + 4c - 12 + 2c]$

$-10c - 80 - 8c + 24 - 4c =$

$\boxed{-22c - 56}$

B 5) Evaluate when $w = -3$

$4w^2 + 3w^2 - w + 8 - 4w =$

f) $4w^2 + 3w^2 - w + 8 - 4w =$

$\boxed{7w^2 - 5w + 8}$

$7(-3)^2 - 5(-3) + 8 =$

$63 + 15 + 8 = \boxed{86}$

B 6) Evaluate if $x = -3$

$8x^2 - 4(x^2 + 2)$

6) $8x^2 - 4(x^2 + 2)$

$8x^2 - 4x^2 - 8$

$4x^2 - 8$

$4(-3)^2 - 8 = 4(9) - 8 = \boxed{28}$

B 7) Solve if $a = 3$

$7a^2 + 3(2 - 4a^2)$

$7a^2 + 6 - 12a^2$

$-5a^2 + 6$

$-5(3)^2 + 6 =$

$-45 + 6 = \boxed{-39}$

B

8) $-3x(-5x-2y+7z) =$

8) $-3x(-5x-2y+7z)$

$15x^2+6xy-21xz$

C

9) Solve if $x=-1$, $y=2$, $z=-2$

$-3x(-5x-2y+7z) =$

9) $-3x(-5x-2y+7z)$

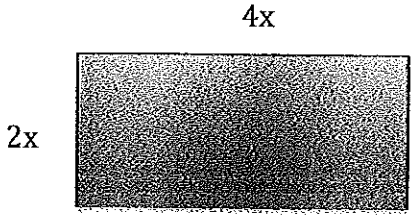
$15x^2+6xy+-21xz$

$15(1)+6(-1)(2)+(-21)(-1)(-2)$

$15+-12+-42 = -39$

A

10) Write a simplified expression for the perimeter and area of the following figure. Then, tell what the perimeter and area would be if x = 1, 2, 3, 4 (make a table)



10) Area $= 2x \cdot 4x = 8x^2$

x	Area $= 8x^2$	Per $= 12x$
1	$8(1)^2 = 8$	$12(1) = 12$
2	$8(2)^2 = 32$	$12(2) = 24$
3	$8(3)^2 = 72$	$12(3) = 36$
4	$8(4)^2 = 128$	$12(4) = 48$

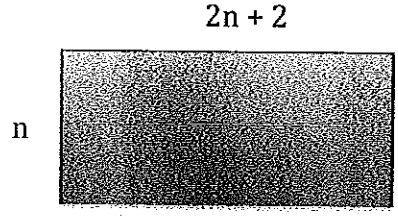
Perimeter $=$

$2(4x)+2(2x)$

$8x+4x = 12x$

A
B

11) Write a simplified expression for the perimeter and area of the following figure. Then, tell what the perimeter and area would be if n = 3, 4, 5, 6



11) Area $= n(2n+2)$

$2n^2+2n$

$6n+4$

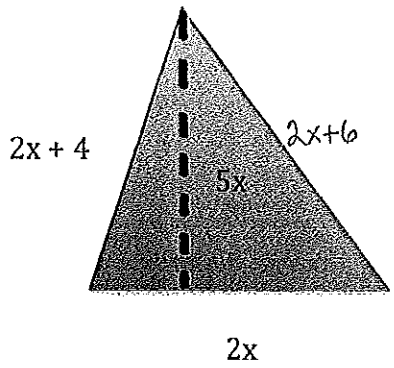
Per	x	Area
$6(3)+4$ $18+4=22$	3	$2(3)^2+2(3) = 18+6 = 24$
$6(4)+4$ $24+4$ 28	4	$2(4)^2+2(4) = 32+8 = 40$
$6(5)+4$ $30+4$ 34	5	$2(5)^2+2(5) = 50+10 = 60$
$6(6)+4$ $36+4=40$	6	$2(6)^2+2(6) = 72+12 = 84$

Per $= 2(2n+2)+2n = 4n+4+2n$

$6n+4$

C

12) Write a simplified expression for the perimeter and area of the following figure. Then, tell what the perimeter and area would be if x = 1, 2, 3, 4, 5.



12) Area $= \frac{1}{2}(2x \cdot 5x)$

$\frac{1}{2}(10x^2) = \boxed{5x^2}$

Perimeter $= 2x+4+2x+6+2x =$ $\boxed{6x+10}$

x	Area	Perimeter
1	$5(1)^2 = 5$	$6(1)+10 = 16$
2	$5(2)^2 = 20$	$6(2)+10 = 22$
3	$5(3)^2 = 45$	$6(3)+10 = 28$
4	$5(4)^2 = 80$	$6(4)+10 = 34$
5	$5(5)^2 = 125$	$6(5)+10 = 40$

B

13) Give an example of an equation that is both the commutative and associative properties.

Sample answer:

$5+(8+3) = (5+3)+8$

C

14) Solve if z = −2.

$-6z(z-8) + 5z^2 - 13z - 15 - 9z^2 - 11z$

14) $-6z(z-8)+5z^2-13z-15-9z^2-11z$

$-6z^2+48z+5z^2-13z-15-9z^2+11z$

$-10z^2+24z-15$

$-10(-2)^2+24(-2)-15$

$-40-48-15 = \boxed{-103}$

B

15) Which expression is equivalent to the expression: 6(x + 2) – 3(x – 1) ?

a) 3x + 9 b) 9x + 5
c) 3x + 15 d) 3x – 15

15) $6(x+2)-3(x-1) =$

$6x+12-3x+3 =$

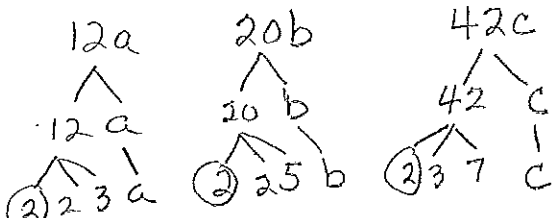
$\boxed{3x+15}$

$\boxed{C}$

A

16) What is the greatest common factor of the terms below?

12a 20b 42c



GCF = 2

A

17) Factor: $27x + 18$

$9(3x+2)$

A

18) Factor: $15x^2 - 27x$

$3x(5x-9)$

B

19) Factor: $72x^3 - 48x^2 + 32$

$8(9x^3 - 6x^2 + 4)$

B

20) Factor: $20x - 70xy + 35y$

$5(4x - 14xy + 7y)$

B

21) What is the factored form of:

$10abc + 50ab - 25b$

$5b(2ac + 10a - 5)$

C

22) What is the factored form of:

$-6gh - 15g^2h$

$-3gh(2+5g)$

B

23) There are 29 teams in the NBA. Each team can have a maximum of 12 healthy players plus 3 players on injured reserve. Use the distributive property to find the maximum number of players who can be in the NBA.

$29(12+3)$

$348 + 87$

435 players

24) Translate the sentences below into algebraic expressions and equations:

A

a) Two less than a number is four.

$n - 2 = 4$

A

b) Nine more than twice a number is twelve.

$2n + 9 = 12$

B

c) Seven is one-fourth of some number.

$\frac{1}{4}n = 7$

A

d) Three times a number decreased by 15.

$3n - 15$

C

e) The number x times the difference between b and c.

$x(b - c)$