

ALGEBRAIC EXPRESSIONS (Review)

Expand the following using the distributive property.

a) $x(x+2)$
 $= x^2 + 2x$

b) $7(x+2)$
 $= 7x + 14$

c) $(x-6)x$
 $= x^2 - 6x$

d) $5(x-6)$
 $= 5x - 30$

e) $x(2x+4)$
 $= 2x^2 + 4x$

f) $-10(2x+4)$
 $= -20x - 40$

Evaluate each expression.

a) $3x + 14$ for $x = 12$
 $= 3(12) + 14$
 $= 36 + 14$
 $= 50$

b) $7r - 3$ for $r = 9$
 $= 7(9) - 3$
 $= 63 - 3$
 $= 60$

c) $24 - 2a$ for $a = -3$
 $= 24 - 2(-3)$
 $= 24 + 6$
 $= 30$

d) $15 + 2k$ for $k = 10$
 $= 15 + 2(10)$
 $= 15 + 20$
 $= 35$

e) $x^2 - 1$ for $x = -2$
 $= (-2)^2 - 1$
 $= 4 - 1$
 $= 3$

f) $x^3 + 2x^2 + 3$ for $x = -1$
 $= (-1)^3 + 2(-1)^2 + 3$
 $= -1 + 2(1) + 3$
 $= -1 + 2 + 3$
 $= 4$

Collect like terms and simplify.

a) $3x + 3y - 5x + 4y$
 $= -2x + 7y$

b) $1x + 6x - 4 + 3xy - 1$
 $= 7x + 3xy - 5$

c) $12g^2 - 2gh + 7hg - 3h^2$
 $= 12g^2 + 5gh - 3h^2$

d) $3m + 4 - 4m^2 - 5m$
 $= -4m^2 - 2m + 4$

Determine the factors each number.

a) 36 <pre> 1 36 / \ 1 36 -1 -36 2 18 -2 -18 3 12 -3 -12 4 9 -4 -9 6 6 -6 -6 </pre>	b) 40 <pre> 1 40 / \ 1 40 -1 -40 2 20 -2 -20 4 10 -4 -10 5 8 -5 -8 </pre>	c) 32 <pre> 1 32 / \ 1 32 -1 -32 2 16 -2 -16 4 8 -4 -8 </pre>	d) 24 <pre> 1 24 / \ 1 24 -1 -24 2 12 -2 -12 3 8 -3 -8 4 6 -4 -6 </pre>	e) 18 <pre> 1 18 / \ 1 18 -1 -18 2 9 -2 -9 3 6 -3 -6 </pre>	f) 72 <pre> 1 72 / \ 1 72 -1 -72 2 36 -2 -36 3 24 -3 -24 4 18 -4 -18 6 12 -6 -12 8 9 -8 -9 </pre>
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Square each monomial.

a) $3x$ $= (3x)^2$ $= (3)^2(x)^2$ $= 9x^2$	b) $5a^2$ $= [5a^2]^2$ $= (5a^2)(5a^2)$ $= 25a^4$
c) $-2g$ $= (-2g)^2$ $= (-2g)(-2g)$ $= -4g^2$	d) $4p^4$ $= (4p^4)^2$ $= (4)^2(p^4)^2$ $= 16p^8$

Determine a pair of integers that meet the following requirements.

24

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  1  24
 -1 -24
  2  12
 -2 -12
  3   8
 -3  -8
  4   6
 -4  -6

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a) Multiply to 24

Add to 10

$$6 + 4 = 10$$

$$\therefore 6 \text{ \& } 4$$

b) Multiply to -25

Add to 0

$$5 + (-5) = 0$$

$$\therefore 5 \text{ \& } -5$$

-25

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  1 -25
 -1  25
  5 -5

```

c) Multiply to -32

Add to -4

$$-8 + 4 = -4$$

$$\therefore -8 \text{ \& } 4$$

-32

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  1 -32
 -1  32
  2 -16
 -2  16
  4 -8
 -4   8

```

Determine the y-intercept for each of the graphed lines

a) -3

c) -4

b) 6

d) 2

