Expressions

19 Which expression is equivalent to $2m\left(\frac{3}{2}m + 1\right) + 3\left(\frac{5}{3}m - 2\right)$?

DISTRIBUTE, COMBINE LIKE TERM

A $3m^2 + 5m - 1$

B $\frac{3}{4}m^2 + \frac{23}{9}m - 6$

C $3m^2 + 7m - 6$

D $\frac{3}{4}m^2 + \frac{5}{9}m - 1$

$\frac{6m^2}{2} + 2m + \frac{15}{3}m - 6$

$3m^2 + 2m + 5m - 6$

$3m^2 + 7m - 6$

47 Which expression is equivalent to $3c\left(\frac{1}{3}d - 9\right) - 7(c + 1) + d(c + 4)$?

DISTRIBUTE, COMBINE LIKE TERMS

A $2cd - 34c + 4d - 7$

B $2cd - 7c - 4$

C $2cd + 34c + 4d + 7$

D $2cd + 8c + 4$

$\frac{3}{3}cd - 27c - 7c - 7 + cd + 4d$

$cd - 27c - 7c - 7 + cd + 4d$

$2cd - 34c + 4d - 7$

Exponents

50 Which expression is equivalent to $\frac{z^a \cdot z^b}{z^c}$? $= \frac{z^{a+b}}{z^c} = z^{a+b-c}$

F $z^{(a-b-c)}$

G $z^{(a-b+c)}$

H $z^{(a+b-c)}$

J $z^{(a+b+c)}$

51 Which expression is equivalent to $\frac{12x^6y^{-4}z^2}{3x^2y^{-6}z^3}$? $= \frac{4x^6y^6z^2}{x^2y^4z^3} = \frac{4x^4y^2}{z}$

- NEGATIVE EXPONENTS MOVE VARIABLE TO DENOMINATOR OR NUMERATOR.
- SUBTRACT EXPONENTS of LIKE VARIABLES

A $\frac{9x^8z^5}{y^{-10}}$

B $\frac{4x^8z^5}{y^{-10}}$

C $\frac{9x^4y^2}{z}$

D $\frac{4x^4y^2}{z}$

Patterns

5 The first five figures in a pattern are shown below. Each figure is made up of identical circles.

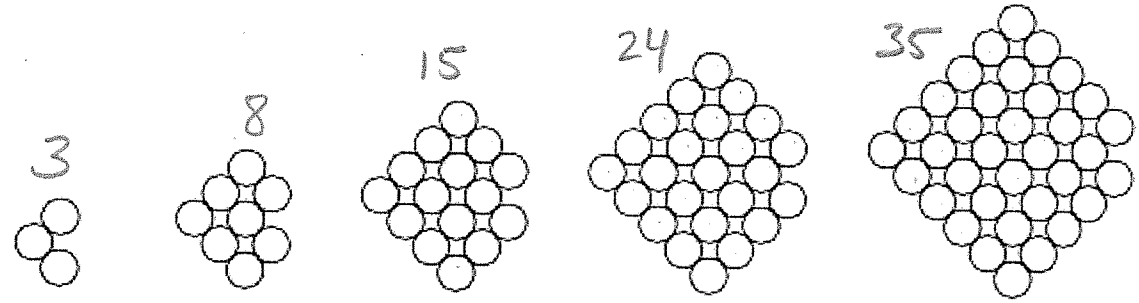

Figure 1 Figure 2 Figure 3 Figure 4 Figure 5

If the pattern continues, which expression can be used to find the number of circles that make up Figure n?

A $n^2 + 2n$

B $n^2 + 2$

C $2n^2 + 1$

D $2n^2 + n$

INPUT EQUATIONS INTO "Y=" IN YOUR CALCULATOR AND IDENTIFY THE TABLE THAT MATCHES THE PATTERN,

FIGURE PATTERN

n	y
1	3
2	8
3	15
4	24
5	35

Expressions

9 In which step below does a mistake first appear in simplifying the expression $0.5(-12c + 6) - 3(c + 4) + 10(c - 5)$?

Step 1: $-6c + 3 - 3(c - 4) + 10(c - 5)$

Step 2: $-6c + 3 - 3c - 12 + 10(c - 5)$

Step 3: $-6c + 3 - 3c - 12 + 10c - 50$ COMBINE LIKE TERMS

Step 4: $7c - 41$ SHOULD BE $C - 59$

A Step 1

B Step 2

C Step 3

D Step 4