

$$\frac{9}{10^m}$$

$$-\frac{24:6}{36:6} = \frac{4:2}{6:2} = \frac{2}{3}$$

التمرين الأول : (4 ن)

أعط دائرة الإجابة الصحيحة الوحيدة لكل سؤال:

(1) $(-\frac{24}{36})$ هو عدد عشري:

(أ) صواب

(ب) خطأ

(2) إذا كان D و D' مستقيمان متوازيان و Δ مستقيم قاطع لهما فإن كل زاويتين داخليتين من نفس الجهة: (ج) متتامتان (أ) متكاملتان (ب) متقايسان

(3) إذا كان $|x| = |-\frac{5}{2}|$ فإن:

(أ) $x = -\frac{5}{2}$ أو $x = \frac{5}{2}$

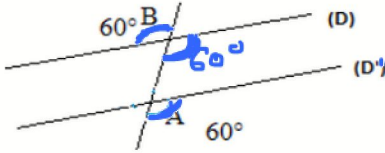
(ب) $x = \frac{5}{2}$

(4) في الشكل المجاور D و D' متوازيان:

(أ) صواب

(ب) خطأ

(ج) لا يمكن إيجاد x



التمرين الثاني : (6 ن)

(1) بين أن العدد $a = 4^{22} - 3 \times 4^{20}$ يقبل القسمة على 13

$$\begin{aligned} a &= 4^{22} - 3 \times 4^{20} \\ &= 4^{20} \times 4^2 - 3 \times 4^{20} \\ &= 4^{20} \times (4^2 - 3) = 13 \times 4^{20} \end{aligned}$$

(2) أحسب $b = -2 \times [-5 \times (1 - 8) - 10] - 11$

$$\begin{aligned} b &= -2 \times [-5 \times (-7) - 10] - 11 \\ &= -2 \times [35 - 10] - 11 \\ &= -2 \times (25) - 11 = -50 - 11 = -61 \end{aligned}$$

(3) نعتبر العبارة التالية حيث x عدد صحيح نسبي $E = (x - 11) + [4 - (x - 2)] - (8 - x)$ بين أن $E = x - 13$

$$\begin{aligned} E &= (x - 11) + [4 - (x - 2)] - (8 - x) \\ &= x - 11 + [4 - x + 2] - 8 + x \\ &= x - 11 + 4 - x + 2 - 8 + x \\ &= x - 11 - 8 + 4 + 2 \\ &= x - 19 + 6 = x - 13 \end{aligned}$$

$$\begin{aligned} E &= x - 13 \\ &= -10 - 13 = -23 \end{aligned}$$

(ب) أحسب E في حالة $x = -10$

(ج) أحسب x في حالة أن E و 13 متقابلان

$$\begin{aligned} E + 13 &= 0 \\ x - 13 + 13 &= 0 \\ x &= 0 \end{aligned}$$

التمرين الثالث : (3 ن)

لتكن العبارتين التاليتين حيث a و b عددان صحيحان نسبيا

$$B = (a - 1)(b + 2) + b \quad \text{و} \quad A = (a - 1) + a(b + 1)$$

(1) بين أن $A = ab + 2a - 1$

$$\begin{aligned} B &= (a - 1)(b + 2) + b \\ &= ab + 2a - b - 2 + b \\ &= ab + 2a - 2 \end{aligned}$$

$$\begin{aligned} A &= (a - 1) + a(b + 1) \\ &= a - 1 + ab + a \\ &= ab + a + a - 1 = ab + 2a - 1 \end{aligned}$$

(2) أحسب $A - B$ ثم استنتج مقارنة للعددين A و B

$$\begin{aligned} A - B &= (ab + 2a - 1) - (ab + 2a - 2) \\ &= ab + 2a - 1 - ab - 2a + 2 = 1 \end{aligned}$$

$$A - B = 1 > 0 \quad \text{إذن} \quad A > B$$



$$\begin{aligned} |x| &= |-\frac{5}{2}| \\ |x| &= \frac{5}{2} \end{aligned}$$

$$\begin{aligned} |m| &= 3 \\ m &= 3 \text{ أو } m = -3 \end{aligned}$$

$$|m| = |-3|$$

$$|m| = 3$$

$$- \times - = +$$

$$+ \times - = -$$

$$- \times + = -$$

$$\begin{aligned} a &\text{ و } b \\ a &= b \\ a + b &= 0 \end{aligned}$$

قرب في 2

$$\begin{cases} (+) \times (+) = (+) \\ (-) \times (-) = (+) \\ (+) \times (-) = (-) \\ (-) \times (+) = (-) \end{cases}$$

$$\begin{aligned} * a \times (b+c) &= a \times b + a \times c \\ a \times (b-c) &= a \times b - a \times c \\ -a \times (b-c) &= -a \times b + a \times c \\ -a \times (-b-c) &= a \times b + a \times c \end{aligned}$$

$$(+ \times +) \times (- \times +) \times (- \times -) \times (- \times -) \times (- \times +) \times (- \times -) = (+)$$

$$(-4) \times (-2) \times 3 \times (-5) \times 6 \times (-1) = 240$$

$$(a-b) \times (c-d)$$

$$= a \times c - a \times d - b \times c + b \times d$$

$$* (x-2)(3-x)$$

$$\begin{aligned} &= 3 \times x - x \times x - 2 \times 3 + 2 \times x \\ &= 3x - x^2 - 6 + 2x \\ &= 3x + 2x - x^2 - 6 \\ &= 5x - x^2 - 6 \end{aligned}$$

$$\begin{aligned} a \times a &= 2a \\ x \times x &= 2x \end{aligned}$$

$$\begin{aligned} 2a &= a + a \\ a^2 &= a \times a \end{aligned}$$



تمرين عدد 1

احسب كلا من الجذاءات التالية :



$$\begin{aligned}
 & (-10) \times (-401) \quad ; \quad 26 \times (-10) \quad ; \quad (-4) \times (-4) \quad ; \quad (-21) \times 20 \\
 & * (-5) \times 2 \times (-3) \times 4 \times (-10) \quad ; \quad * (-5) \times 2 \times (-3) \times 4 \times (-10) \quad ; \quad * (-5) \times (-1) \times (-3) \times (-2) \times (-4) \times (-10) \quad ; \quad * (-5) \times (-1) \times (-3) \times (-2) \times (-4) \times (-10) \\
 & = -1200 \quad ; \quad = -1200 \quad ; \quad = +1200 \\
 & * (-5) \times [(-17) + (-3)] \quad ; \quad * 4 \times [5 + (-3)] \quad ; \quad * (-4) \times [-7 - 3] \quad ; \quad * (-2) \times [7 + (-3)] \\
 & = (-5) \times (-20) \quad ; \quad = 4 \times (2) \quad ; \quad = -4 \times (-10) \quad ; \quad = (-2) \times (4) \\
 & = 100 \quad ; \quad = 8 \quad ; \quad = 40 \quad ; \quad = -8
 \end{aligned}$$



احسب كلا من العبارات التالية :



$$C = (-4+3) \times (-2) + (-1) \times (-3) ; B = -5 \times 2 \times (-3) + (-4) \times (-10) ; A = -5 + 2 \times (-1) + (-3) \times (-2)$$

$$F = (-2) + 7 \times 3 + (-5) ; E = (-2) \times (7 + (-2) \times 5) \times 10 + (-5) ; D = (-2) \times 7 + 3 \times (-5)$$

$$\begin{aligned} F &= (-2) + 7 \times 3 + (-5) \\ &= -2 + 7 \times 3 - 5 \\ &= -2 + (-5) + 21 \\ &= -7 + 21 = 14 \end{aligned} \quad \left\{ \begin{aligned} C &= (-4+3) \times (-2) + (-1) \times (-3) \\ &= (-1) \times (-2) + (-1) \times (-3) \\ &= 2 + 3 \\ &= 5 \end{aligned} \right.$$

$$\begin{aligned} B &= -5 \times 2 \times (-3) + (-4) \times (-10) \\ &= -10 \times (-3) + 40 \\ &= 30 + 40 = 70 \end{aligned} \quad \left\{ \begin{aligned} E &= (-2) \times (7 + (-2) \times 5) \times 10 + (-5) \\ &= (-2) \times (7 + (-10)) \times 10 - 5 \\ &= -2 \times (7 - 10) \times 10 - 5 \\ &= -2 \times (-3) \times 10 - 5 \\ &= 60 - 5 \\ &= 55 \end{aligned} \right.$$





انشر ثم اختصر العبارات التالية حيث $a \in \mathbb{Z}$ و $b \in \mathbb{Z}$.

$$B = -(-a+10) - 2(3a+5) + 4(-4a+7) \quad ; \quad A = 2(3a+5) - 5(7a-4)$$

$$D = -3(a-2b-1) + 4(3a+2) - 2(-a-3b-1) \quad ; \quad C = 5(a-b-4) + 3(6a-b) + 8(3a-4b)$$

$$F = 5(a+b) - 3(a-b) + 2(-a-b) \quad ; \quad E = a(b+2) - b(a-2)$$

$$I = (a-1) \times (b-2) \quad ; \quad H = (5-a)(b+4) \quad ; \quad G = (a+1) \times (b+2)$$

$$L = -4(-2a+1)(5b+2) \quad ; \quad K = 3(4a+1) \times (2b-1) \quad ; \quad J = (2a-1)(3b-2)$$

$$\begin{aligned} B &= -(-a+10) - 2(3a+5) + 4(-4a+7) \\ &= a - 10 - 2 \times 3a - 2 \times 5 - 4 \times 4a + 4 \times 7 \\ &= a - 10 - 6a - 10 - 16a + 28 \\ &= a - 6a - 16a - 10 - 10 + 28 \\ &= -21a - 20 + 28 \\ &= -21a + 8 \end{aligned} \quad \begin{aligned} A &= 2(3a+5) - 5(7a-4) \\ &= 2 \times 3a + 2 \times 5 - 5 \times 7a + 5 \times 4 \\ &= 6a + 10 - 35a + 20 \\ &= 6a - 35a + 10 + 20 \\ &= -29a + 30 \end{aligned}$$

$$\begin{aligned} D &= -3(a-2b-1) + 4(3a+2) - 2(-a-3b-1) \\ &= -3a + 3 \times 2b + 3 \times 1 + 4 \times 3a + 4 \times 2 + 2a + 2 \times 3b + 2 \times 1 \\ &= -3a + 6b + 3 + 12a + 8 + 2a + 6b + 2 \\ &= -3a + 12a + 2a + 6b + 6b + 3 + 8 + 2 \\ &= 11a + 12b + 13 \end{aligned}$$

$$\begin{aligned} C &= 5(a-b-4) + 3(6a-b) + 8(3a-4b) \\ &= 5a - 5b - 5 \times 4 + 3 \times 6a - 3b + 8 \times 3a - 8 \times 4b \\ &= 5a - 5b - 20 + 18a - 3b + 24a - 32b \\ &= 5a + 18a + 24a - 5b - 3b - 32b - 20 \\ &= 47a - 40b - 20 \end{aligned}$$

$$\begin{aligned} J &= (2a-1)(3b-2) \\ &= 2a \times 3b - 2a \times 2 - 1 \times 3b + 1 \times 2 \\ &= 6ab - 4a - 3b + 2 \end{aligned}$$

Bien.



اكتب كلا من العبارات التالية على شكل جزاء حيث $a \in \mathbb{Z}$ و $b \in \mathbb{Z}$.

$$C = 5ab + 7a$$

$$B = 35b - 5$$

$$A = 49a + 7$$

$$F = -5a + 20b - 10$$

$$E = -2a - 2b + 2$$

$$D = -3a + 9b - 21$$

$$I = -8a(a-1) + 5(a-1)$$

$$H = 7(a+b) - 2b(a+b)$$

$$G = 5(a+1) + 4b(a+1)$$

$$\begin{aligned} E &= -2a - 2b + 2 \times 1 \\ &= 2 \times (-a - b + 1) \end{aligned}$$

$$\begin{aligned} H &= 7(a+b) - 2b(a+b) \\ &= (a+b)(7-2b) \end{aligned}$$

$$\begin{aligned} A &= 49a + 7 \\ &= 7 \times 7a + 7 \times 1 \\ &= 7 \times (7a + 1) \end{aligned}$$

$$\begin{aligned} &\times a(b+1) \\ &= a \times (b+1) \end{aligned}$$





(1) احسب كلا من العبارات التالية إذا علمت أن $a+b = -5$

$$C = 10a + 14b + 5b - 6a - 15b$$

$$B = -12 - 4a + 3 - 4b$$

$$A = 7a + 7b$$

(2) احسب كلا من العبارات التالية إذا علمت أن $a-b = -10$

$$F = 17a - 12b - 25a + 20b$$

$$E = 12a - 12b - 25$$

$$D = 3a - 3b$$

$$\begin{aligned} B &= -12 - 4a + 3 - 4b \\ &= \underline{-12+3} - 4a - 4b \\ &= -9 - 4(a+b) \\ &= -9 - 4(-5) \\ &= -9 + 20 = 11 \end{aligned}$$

$$\begin{aligned} A &= 7a + 7b \\ &= 7 \times (a+b) \\ &= 7 \times (-5) \\ &= -35 \end{aligned}$$

$$a+b = -5 \quad (1)$$

$$\begin{aligned} C &= 10a + 14b + 5b - 6a - 15b \\ &= \underline{10a - 6a} + \underline{14b + 5b - 15b} \\ &= 4a + 4b \\ &= 4 \times (a+b) = 4 \times (-5) = -20 \end{aligned}$$

$$\begin{aligned} E &= 12a - 12b - 25 \\ &= 12 \times (a-b) - 25 \\ &= 12 \times (-10) - 25 \\ &= -120 - 25 \\ &= -145 \end{aligned}$$

$$\begin{aligned} D &= 3a - 3b \\ &= 3 \times (a-b) \\ &= 3 \times (-10) = -30 \end{aligned}$$

$$a-b = -10 \quad (2)$$

$$(b-a) = -(a-b)$$

$$\begin{aligned} W &= 3b - 3a \\ &= 3 \times (b-a) \\ &= 3 \times (-(a-b)) \\ &= 3 \times (-(-10)) \\ &= 3 \times 10 = 30 \end{aligned}$$

