

In[1]:= **Solve**[d + c1m1 - (r / 2) * (3 * d + kc1 + c12) == 0, c1m1]

Out[1]= $\left\{\left\{c1m1 \rightarrow \frac{1}{2} (-2 d + c12 r + 3 d r + kc1 r)\right\}\right\}$

In[2]:= (1 / 2) * (d + m12 + 2 * c1m1) -
 (1 / 2) * (-d * (n - 2) + kc1 + c12 + (3 - n) * c1m1 + km1) + (r / (12)) *
 ((n - 2) ^ 2) * d + k2 + (6 - 2 * n) * kc1 + (5 - 2 * n) * c12 + c2b + c2 - (n - 2) * c12 +
 ((n - 1) * (n - 2) / 2) * d + (3 - n) * kc1 - ((3 * n ^ 2 + 5 * n + 2) / 2) * d - c1m2 - m1m2

Out[2]= $-c1m2 + \frac{1}{2} (2 c1m1 + d + m12) - m1m2 + \frac{1}{2} (-c12 - kc1 - km1 - c1m1 (3 - n) + d (-2 + n)) +$
 $\frac{1}{12} \left(c2 + c2b + k2 + c12 (5 - 2 n) + kc1 (6 - 2 n) + kc1 (3 - n) - \right.$
 $\left. c12 (-2 + n) + d (-2 + n)^2 + \frac{1}{2} d (-2 + n) (-1 + n) - \frac{1}{2} d (2 + 5 n + 3 n^2) \right) r$

In[3]:= **Expand**[%]

Out[3]= $-\frac{c12}{2} - \frac{c1m1}{2} - c1m2 - \frac{d}{2} - \frac{kc1}{2} - \frac{km1}{2} + \frac{m12}{2} - m1m2 + \frac{c1m1 n}{2} + \frac{d n}{2} +$
 $\frac{7 c12 r}{12} + \frac{c2 r}{12} + \frac{c2b r}{12} + \frac{d r}{3} + \frac{k2 r}{12} + \frac{3 kc1 r}{4} - \frac{c12 n r}{4} - \frac{2 d n r}{3} - \frac{kc1 n r}{4}$

In[4]:= **ReplaceAll**[% , {c1m1 → $\frac{1}{2} (-2 d + c12 r + 3 d r + kc1 r)$ }]

Out[4]= $-\frac{c12}{2} - c1m2 - \frac{d}{2} - \frac{kc1}{2} - \frac{km1}{2} + \frac{m12}{2} - m1m2 + \frac{d n}{2} + \frac{7 c12 r}{12} +$
 $\frac{c2 r}{12} + \frac{c2b r}{12} + \frac{d r}{3} + \frac{k2 r}{12} + \frac{3 kc1 r}{4} - \frac{c12 n r}{4} - \frac{2 d n r}{3} - \frac{kc1 n r}{4} +$
 $\frac{1}{4} (2 d - c12 r - 3 d r - kc1 r) + \frac{1}{4} n (-2 d + c12 r + 3 d r + kc1 r)$

In[5]:= **Expand**[%]

Out[5]= $-\frac{c12}{2} - c1m2 - \frac{kc1}{2} - \frac{km1}{2} + \frac{m12}{2} - m1m2 + \frac{c12 r}{3} + \frac{c2 r}{12} + \frac{c2b r}{12} - \frac{5 d r}{12} + \frac{k2 r}{12} + \frac{kc1 r}{2} + \frac{d n r}{12}$

In[6]:= **Factor**[%]

Out[6]= $\frac{1}{12} (-6 c12 - 12 c1m2 - 6 kc1 - 6 km1 + 6 m12 -$
 $12 m1m2 + 4 c12 r + c2 r + c2b r - 5 d r + k2 r + 6 kc1 r + d n r)$

In[7]:= **12 * %**

Out[7]= $-6 c12 - 12 c1m2 - 6 kc1 - 6 km1 + 6 m12 -$
 $12 m1m2 + 4 c12 r + c2 r + c2b r - 5 d r + k2 r + 6 kc1 r + d n r$

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In[8]:= c1m2 + 2 * m1m2 - (1 / 3) * (d + 3 * c1m1 + 3 * m12) +
(1 / 2) * (- (n - 2) * d + kc1 + c12 - 2 * (n - 3) * c1m1 + 2 * km1 - (n - 2) * m12) -
(- (n - 3) * c1m2 + km2 - (n - 2) * m1m2) - (1 / 6) * ((n - 2) ^ 2) * d + k2 +
(5 - 2 * n) * c12 + 2 * (3 - n) * kc1 + (n - 2) * (n - 4) * c1m1 - 2 * (n - 2) * km1) -
(1 / 6) * (c2b + c2 - (n - 2) * c12 + (n - 1) * ((n - 2) / 2) * d + (3 - n) * kc1 +
(2 - n + (n - 1) * ((n - 2) / 2)) * c1m1 - (n - 2) * km1) +
(r / (12)) * (- (n - 2) * c2b - (n - 2) * c2 + ((n - 2) * (n - 3) + (n - 1) * (n - 2) / 2) * c12 -
(n - 2) * (n - 1) * ((n - 2) / 2) * d + ((n - 2) * (n - 5) + (n - 1) * (n - 2) / 2) * kc1 -
(n - 2) * k2) + r * n * ((n + 1) ^ 2) * d / (24)
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Out[8]= c1m2 - km2 +  $\frac{1}{3}$  (-3 c1m1 - d - 3 m12) + 2 m1m2 +
 $\frac{1}{2}$  (c12 + kc1 + 2 km1 + d (2 - n) - 2 c1m1 (-3 + n) - m12 (-2 + n)) +
 $\frac{1}{6}$  (-k2 - c12 (5 - 2 n) - 2 kc1 (3 - n) + 2 km1 (-2 + n) - c1m1 (-4 + n) (-2 + n) - d (-2 + n) ^ 2) +
 $\frac{1}{6}$  (-c2 - c2b - kc1 (3 - n) - c1m1 (2 +  $\frac{1}{2}$  (-2 + n) (-1 + n) - n) +
c12 (-2 + n) + km1 (-2 + n) -  $\frac{1}{2}$  d (-2 + n) (-1 + n)) - c1m2 (3 - n) +
m1m2 (-2 + n) +  $\frac{1}{12}$  (kc1 ((-5 + n) (-2 + n) +  $\frac{1}{2}$  (-2 + n) (-1 + n)) +
c12 ((-3 + n) (-2 + n) +  $\frac{1}{2}$  (-2 + n) (-1 + n)) + c2b (2 - n) -
c2 (-2 + n) - k2 (-2 + n) -  $\frac{1}{2}$  d (-2 + n) ^ 2 (-1 + n)) r +  $\frac{1}{24}$  d n (1 + n) ^ 2 r
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In[9]:= Expand[%]
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Out[9]= -  $\frac{2 c12}{3}$  +  $\frac{c1m1}{6}$  - 2 c1m2 -  $\frac{c2}{6}$  -  $\frac{c2b}{6}$  -  $\frac{d}{6}$  -  $\frac{k2}{6}$  - kc1 - km2 +  $\frac{c12 n}{2}$  +
 $\frac{5 c1m1 n}{12}$  + c1m2 n +  $\frac{5 d n}{12}$  +  $\frac{kc1 n}{2}$  +  $\frac{km1 n}{2}$  -  $\frac{m12 n}{2}$  + m1m2 n -  $\frac{c1m1 n^2}{4}$  -
 $\frac{d n^2}{4}$  +  $\frac{7 c12 r}{12}$  +  $\frac{c2 r}{6}$  +  $\frac{c2b r}{6}$  +  $\frac{d r}{6}$  +  $\frac{k2 r}{6}$  +  $\frac{11 kc1 r}{12}$  -  $\frac{13 c12 n r}{24}$  -  $\frac{c2 n r}{12}$  -
 $\frac{c2b n r}{12}$  -  $\frac{7 d n r}{24}$  -  $\frac{k2 n r}{12}$  -  $\frac{17 kc1 n r}{24}$  +  $\frac{1}{8}$  c12 n^2 r +  $\frac{7}{24}$  d n^2 r +  $\frac{1}{8}$  kc1 n^2 r
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In[10]:= Factor[%]
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Out[10]=  $\frac{1}{24}$ 
(-16 c12 + 4 c1m1 - 48 c1m2 - 4 c2 - 4 c2b - 4 d - 4 k2 - 24 kc1 - 24 km2 + 12 c12 n + 10 c1m1 n +
24 c1m2 n + 10 d n + 12 kc1 n + 12 km1 n - 12 m12 n + 24 m1m2 n - 6 c1m1 n^2 - 6 d n^2 +
14 c12 r + 4 c2 r + 4 c2b r + 4 d r + 4 k2 r + 22 kc1 r - 13 c12 n r - 2 c2 n r - 2 c2b n r -
7 d n r - 2 k2 n r - 17 kc1 n r + 3 c12 n^2 r + 7 d n^2 r + 3 kc1 n^2 r)
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In[11]:= **24 * %**

Out[11]=

$$\begin{aligned} & -16 c_{12} + 4 c_{1m1} - 48 c_{1m2} - 4 c_2 - 4 c_{2b} - 4 d - 4 k_2 - 24 k c_1 - 24 k m_2 + 12 c_{12} n + \\ & 10 c_{1m1} n + 24 c_{1m2} n + 10 d n + 12 k c_1 n + 12 k m_1 n - 12 m_{12} n + 24 m_{1m2} n - \\ & 6 c_{1m1} n^2 - 6 d n^2 + 14 c_{12} r + 4 c_2 r + 4 c_{2b} r + 4 d r + 4 k_2 r + 22 k c_1 r - 13 c_{12} n r - \\ & 2 c_2 n r - 2 c_{2b} n r - 7 d n r - 2 k_2 n r - 17 k c_1 n r + 3 c_{12} n^2 r + 7 d n^2 r + 3 k c_1 n^2 r \end{aligned}$$

In[12]:= **ReplaceAll**[%, { $c_{1m1} \rightarrow \frac{1}{2} (-2 d + c_{12} r + 3 d r + k c_1 r)$ }]

Out[12]=

$$\begin{aligned} & -16 c_{12} - 48 c_{1m2} - 4 c_2 - 4 c_{2b} - 4 d - 4 k_2 - 24 k c_1 - 24 k m_2 + 12 c_{12} n + 24 c_{1m2} n + \\ & 10 d n + 12 k c_1 n + 12 k m_1 n - 12 m_{12} n + 24 m_{1m2} n - 6 d n^2 + 14 c_{12} r + 4 c_2 r + \\ & 4 c_{2b} r + 4 d r + 4 k_2 r + 22 k c_1 r - 13 c_{12} n r - 2 c_2 n r - 2 c_{2b} n r - 7 d n r - 2 k_2 n r - \\ & 17 k c_1 n r + 3 c_{12} n^2 r + 7 d n^2 r + 3 k c_1 n^2 r + 2 (-2 d + c_{12} r + 3 d r + k c_1 r) + \\ & 5 n (-2 d + c_{12} r + 3 d r + k c_1 r) - 3 n^2 (-2 d + c_{12} r + 3 d r + k c_1 r) \end{aligned}$$

In[13]:= **Expand**[%]

Out[13]=

$$\begin{aligned} & -16 c_{12} - 48 c_{1m2} - 4 c_2 - 4 c_{2b} - 8 d - 4 k_2 - 24 k c_1 - 24 k m_2 + 12 c_{12} n + 24 c_{1m2} n + \\ & 12 k c_1 n + 12 k m_1 n - 12 m_{12} n + 24 m_{1m2} n + 16 c_{12} r + 4 c_2 r + 4 c_{2b} r + 10 d r + 4 k_2 r + \\ & 24 k c_1 r - 8 c_{12} n r - 2 c_2 n r - 2 c_{2b} n r + 8 d n r - 2 k_2 n r - 12 k c_1 n r - 2 d n^2 r \end{aligned}$$

In[14]:= **Factor**[%]

Out[14]=

$$\begin{aligned} & -2 \left(8 c_{12} + 24 c_{1m2} + 2 c_2 + 2 c_{2b} + 4 d + 2 k_2 + 12 k c_1 + 12 k m_2 - 6 c_{12} n - 12 c_{1m2} n - \right. \\ & 6 k c_1 n - 6 k m_1 n + 6 m_{12} n - 12 m_{1m2} n - 8 c_{12} r - 2 c_2 r - 2 c_{2b} r - 5 d r - 2 k_2 r - \\ & \left. 12 k c_1 r + 4 c_{12} n r + c_2 n r + c_{2b} n r - 4 d n r + k_2 n r + 6 k c_1 n r + d n^2 r \right) \end{aligned}$$

In[15]:= **% / (-2)**

Out[15]=

$$\begin{aligned} & 8 c_{12} + 24 c_{1m2} + 2 c_2 + 2 c_{2b} + 4 d + 2 k_2 + 12 k c_1 + 12 k m_2 - 6 c_{12} n - 12 c_{1m2} n - \\ & 6 k c_1 n - 6 k m_1 n + 6 m_{12} n - 12 m_{1m2} n - 8 c_{12} r - 2 c_2 r - 2 c_{2b} r - 5 d r - \\ & 2 k_2 r - 12 k c_1 r + 4 c_{12} n r + c_2 n r + c_{2b} n r - 4 d n r + k_2 n r + 6 k c_1 n r + d n^2 r \end{aligned}$$

In[16]:= **Solve**[Out[7] == 0, m1m2]

Out[16]=

$$\left\{ \left\{ m_{1m2} \rightarrow \frac{1}{12} (-6 c_{12} - 12 c_{1m2} - 6 k c_1 - 6 k m_1 + 6 m_{12} + 4 c_{12} r + c_2 r + c_{2b} r - 5 d r + k_2 r + 6 k c_1 r + d n r) \right\} \right\}$$

In[17]:= **ReplaceAll**[Out[15],

$\left\{ m_{1m2} \rightarrow \frac{1}{12} (-6 c_{12} - 12 c_{1m2} - 6 k c_1 - 6 k m_1 + 6 m_{12} + 4 c_{12} r + c_2 r + c_{2b} r - 5 d r + k_2 r + 6 k c_1 r + d n r) \right\}$]

Out[17]=

$$\begin{aligned} & 8 c_{12} + 24 c_{1m2} + 2 c_2 + 2 c_{2b} + 4 d + 2 k_2 + 12 k c_1 + 12 k m_2 - 6 c_{12} n - 12 c_{1m2} n - \\ & 6 k c_1 n - 6 k m_1 n + 6 m_{12} n - 8 c_{12} r - 2 c_2 r - 2 c_{2b} r - 5 d r - 2 k_2 r - 12 k c_1 r + \\ & 4 c_{12} n r + c_2 n r + c_{2b} n r - 4 d n r + k_2 n r + 6 k c_1 n r + d n^2 r - n (-6 c_{12} - 12 c_{1m2} - \\ & 6 k c_1 - 6 k m_1 + 6 m_{12} + 4 c_{12} r + c_2 r + c_{2b} r - 5 d r + k_2 r + 6 k c_1 r + d n r) \end{aligned}$$

In[18]:= **Expand[%]**

Out[18]=

$$8 c_{12} + 24 c_{1m2} + 2 c_2 + 2 c_{2b} + 4 d + 2 k_2 + 12 k c_1 + 12 k m_2 - 8 c_{12} r - 2 c_2 r - 2 c_{2b} r - 5 d r - 2 k_2 r - 12 k c_1 r + d n r$$

In[19]:= **(1 / (12)) * (k2 + c2b) + m12 / 2 - m1m2 - km1 / 2 + km2 / 2**

Out[19]=

$$\frac{c_{2b} + k_2}{12} - \frac{km_1}{2} + \frac{km_2}{2} + \frac{m_{12}}{2} - m_{1m2}$$

In[20]:= **ReplaceAll[%, {m1m2 → $\frac{1}{12} (-6 c_{12} - 12 c_{1m2} - 6 k c_1 -$**

$$6 km_1 + 6 m_{12} + 4 c_{12} r + c_2 r + c_{2b} r - 5 d r + k_2 r + 6 k c_1 r + d n r) \}]$$

Out[20]=

$$\frac{c_{2b} + k_2}{12} - \frac{km_1}{2} + \frac{km_2}{2} + \frac{m_{12}}{2} + \frac{1}{12} (6 c_{12} + 12 c_{1m2} + 6 k c_1 + 6 km_1 - 6 m_{12} - 4 c_{12} r - c_2 r - c_{2b} r + 5 d r - k_2 r - 6 k c_1 r - d n r)$$

In[21]:= **Expand[%]**

Out[21]=

$$\frac{c_{12}}{2} + c_{1m2} + \frac{c_{2b}}{12} + \frac{k_2}{12} + \frac{k c_1}{2} + \frac{km_2}{2} - \frac{c_{12} r}{3} - \frac{c_2 r}{12} - \frac{c_{2b} r}{12} + \frac{5 d r}{12} - \frac{k_2 r}{12} - \frac{k c_1 r}{2} - \frac{d n r}{12}$$

In[22]:= **Factor[%]**

Out[22]=

$$\frac{1}{12} (6 c_{12} + 12 c_{1m2} + c_{2b} + k_2 + 6 k c_1 + 6 km_2 - 4 c_{12} r - c_2 r - c_{2b} r + 5 d r - k_2 r - 6 k c_1 r - d n r)$$

In[23]:= **12 * %**

Out[23]=

$$6 c_{12} + 12 c_{1m2} + c_{2b} + k_2 + 6 k c_1 + 6 km_2 - 4 c_{12} r - c_2 r - c_{2b} r + 5 d r - k_2 r - 6 k c_1 r - d n r$$

In[24]:= **Solve[% == 0, c2b]**

Out[24]=

$$\left\{ \left\{ c_{2b} \rightarrow \frac{6 c_{12} + 12 c_{1m2} + k_2 + 6 k c_1 + 6 km_2 - 4 c_{12} r - c_2 r + 5 d r - k_2 r - 6 k c_1 r - d n r}{-1 + r} \right\} \right\}$$

In[25]:= **ReplaceAll[Out[18],**

$$\left\{ c_{2b} \rightarrow \frac{6 c_{12} + 12 c_{1m2} + k_2 + 6 k c_1 + 6 km_2 - 4 c_{12} r - c_2 r + 5 d r - k_2 r - 6 k c_1 r - d n r}{-1 + r} \right\}]$$

Out[25]=

$$8 c_{12} + 24 c_{1m2} + 2 c_2 + 4 d + 2 k_2 + 12 k c_1 + 12 k m_2 - 8 c_{12} r - 2 c_2 r - 5 d r - 2 k_2 r - 12 k c_1 r + d n r + \frac{2 (6 c_{12} + 12 c_{1m2} + k_2 + 6 k c_1 + 6 km_2 - 4 c_{12} r - c_2 r + 5 d r - k_2 r - 6 k c_1 r - d n r)}{-1 + r} - \frac{2 r (6 c_{12} + 12 c_{1m2} + k_2 + 6 k c_1 + 6 km_2 - 4 c_{12} r - c_2 r + 5 d r - k_2 r - 6 k c_1 r - d n r)}{-1 + r}$$

In[26]:= **Expand[%]**

Out[26]=

$$\begin{aligned}
& 8 c_{12} + 24 c_{1m2} + 2 c_2 + 4 d + 2 k_2 + 12 k c_1 + 12 k m_2 + \frac{12 c_{12}}{-1+r} + \frac{24 c_{1m2}}{-1+r} + \\
& \frac{2 k_2}{-1+r} + \frac{12 k c_1}{-1+r} + \frac{12 k m_2}{-1+r} - 8 c_{12} r - 2 c_2 r - 5 d r - 2 k_2 r - 12 k c_1 r + d n r - \\
& \frac{20 c_{12} r}{-1+r} - \frac{24 c_{1m2} r}{-1+r} - \frac{2 c_2 r}{-1+r} + \frac{10 d r}{-1+r} - \frac{4 k_2 r}{-1+r} - \frac{24 k c_1 r}{-1+r} - \frac{12 k m_2 r}{-1+r} - \\
& \frac{2 d n r}{-1+r} + \frac{8 c_{12} r^2}{-1+r} + \frac{2 c_2 r^2}{-1+r} - \frac{10 d r^2}{-1+r} + \frac{2 k_2 r^2}{-1+r} + \frac{12 k c_1 r^2}{-1+r} + \frac{2 d n r^2}{-1+r}
\end{aligned}$$

In[27]:= **Factor[%]**

Out[27]=

$$-4 c_{12} + 2 c_2 + 4 d - 15 d r + 3 d n r$$

In[28]:= **ReplaceAll[% , {c2 → c12 - d}]**

Out[28]=

$$-4 c_{12} + 2 (c_{12} - d) + 4 d - 15 d r + 3 d n r$$

In[29]:= **Expand[%]**

Out[29]=

$$-2 c_{12} + 2 d - 15 d r + 3 d n r$$

In[30]:= **(r - 1) * (k2 + c2b) / (12) + (r - 1) * c12 / 2 - c1m2 - km2 / 2 + (r - 1) * kc1 / 2**

Out[30]=

$$-c_{1m2} - \frac{k m_2}{2} + \frac{1}{2} c_{12} (-1+r) + \frac{1}{12} (c_{2b} + k_2) (-1+r) + \frac{1}{2} k c_1 (-1+r)$$

In[31]:= **Expand[%]**

Out[31]=

$$-\frac{c_{12}}{2} - c_{1m2} - \frac{c_{2b}}{12} - \frac{k_2}{12} - \frac{k c_1}{2} - \frac{k m_2}{2} + \frac{c_{12} r}{2} + \frac{c_{2b} r}{12} + \frac{k_2 r}{12} + \frac{k c_1 r}{2}$$

In[32]:= **Factor[%]**

Out[32]=

$$\frac{1}{12} (-6 c_{12} - 12 c_{1m2} - c_{2b} - k_2 - 6 k c_1 - 6 k m_2 + 6 c_{12} r + c_{2b} r + k_2 r + 6 k c_1 r)$$

In[33]:= **12 * %**

Out[33]=

$$-6 c_{12} - 12 c_{1m2} - c_{2b} - k_2 - 6 k c_1 - 6 k m_2 + 6 c_{12} r + c_{2b} r + k_2 r + 6 k c_1 r$$

In[34]:= **ReplaceAll**[%,

$$\left\{c2b \rightarrow \frac{6 c12 + 12 c1m2 + k2 + 6 kc1 + 6 km2 - 4 c12 r - c2 r + 5 d r - k2 r - 6 kc1 r - d n r}{-1 + r}\right\}$$

Out[34]=

$$\frac{-6 c12 - 12 c1m2 - k2 - 6 kc1 - 6 km2 + 6 c12 r + k2 r + 6 kc1 r - 6 c12 + 12 c1m2 + k2 + 6 kc1 + 6 km2 - 4 c12 r - c2 r + 5 d r - k2 r - 6 kc1 r - d n r}{-1 + r} + \frac{r (6 c12 + 12 c1m2 + k2 + 6 kc1 + 6 km2 - 4 c12 r - c2 r + 5 d r - k2 r - 6 kc1 r - d n r)}{-1 + r}$$

In[35]:= **Expand**[%]

Out[35]=

$$\begin{aligned} & -6 c12 - 12 c1m2 - k2 - 6 kc1 - 6 km2 - \frac{6 c12}{-1 + r} - \frac{12 c1m2}{-1 + r} - \frac{k2}{-1 + r} - \frac{6 kc1}{-1 + r} - \\ & \frac{6 km2}{-1 + r} + 6 c12 r + k2 r + 6 kc1 r + \frac{10 c12 r}{-1 + r} + \frac{12 c1m2 r}{-1 + r} + \frac{c2 r}{-1 + r} - \frac{5 d r}{-1 + r} + \frac{2 k2 r}{-1 + r} + \\ & \frac{12 kc1 r}{-1 + r} + \frac{6 km2 r}{-1 + r} + \frac{d n r}{-1 + r} - \frac{4 c12 r^2}{-1 + r} - \frac{c2 r^2}{-1 + r} + \frac{5 d r^2}{-1 + r} - \frac{k2 r^2}{-1 + r} - \frac{6 kc1 r^2}{-1 + r} - \frac{d n r^2}{-1 + r} \end{aligned}$$

In[36]:= **Factor**[%]

Out[36]=

$$(2 c12 - c2 + 5 d - d n) r$$

In[37]:= **ReplaceAll**[% , {c2 → c12 - d}]

Out[37]=

$$(c12 + 6 d - d n) r$$

In[38]:= **Solve**[% == 0, c12]

Out[38]=

$$\{\{c12 \rightarrow -6 d + d n\}\}$$

In[39]:= **ReplaceAll**[Out[29], {c12 → -6 d + d n}]

Out[39]=

$$2 d - 2 (-6 d + d n) - 15 d r + 3 d n r$$

In[40]:= **Expand**[%]

Out[40]=

$$14 d - 2 d n - 15 d r + 3 d n r$$

In[41]:= **Factor**[%]

Out[41]=

$$d (14 - 2 n - 15 r + 3 n r)$$