

شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية



حل تمارين الوحدة الخامسة (الطاقة الحركية والشغل والقدرة)

[موقع المناهج](#) ← [المناهج الإماراتية](#) ← [الصف الحادي عشر المتقدم](#) ← [فيزياء](#) ← [الفصل الثاني](#) ← [الملف](#)

تاريخ نشر الملف على موقع المناهج: 2019-09-27 21:03:02 | اسم المدرس: ظريف محب الكناني

التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم



روابط مواد الصف الحادي عشر المتقدم على تلغرام

[الرياضيات](#)

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المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة فيزياء في الفصل الثاني

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تم تحميل هذا الملف من موقع المناهج الإماراتية



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* للحصول على أوراق عمل لجميع مواد الصف الحادي عشر المتقدم في مادة فيزياء الخاصة بـ الفصل الثاني اضغط هنا

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* لتحميل كتب جميع المواد في جميع الفصول للـ الصف الحادي عشر المتقدم اضغط هنا

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Grade12files

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5.1	$W = F r = m a r \equiv kg \cdot \frac{m}{s^2} \cdot m = kg \cdot \frac{m^2}{s^2}$	c
5.2	$W = m g h = 800 \times 2.0 = 1600 j$ $W_k = 1600 - 3200 = -1600j$ $W_k = F_k r \quad \therefore F_{net} = \frac{W}{r} = \frac{-1600}{4.0} = -400N$	d
5.3	$P = \frac{E}{t} = \frac{\frac{1}{2} m v^2}{t} = \frac{\frac{1}{2} m v^2}{\frac{x}{v}} = \frac{\frac{1}{2} m v^3}{x} = \frac{1}{2} \frac{m}{x} v^3 = \frac{1}{2} k v^3$	a
5.4	$P = F v_{avg} = m a v_{avg} = 1500 \times \left(\frac{25-0.0}{7.0}\right) \times \left(\frac{25+0.0}{2}\right) = \frac{66964.28}{746} = 89.7 hp$	d
5.5	$P = \frac{W}{t} = \frac{F r}{t} = \frac{m a r}{t} = \frac{kg \frac{m}{s^2} m}{s} = kg \cdot m^2 / s^3$	a
5.6	$W = m g h = 75.0 \times 9.81 \times 10.0 = 7357.5 j$	e
5.7	$W_k = F_k r = (0.70 \times 150 \times 9.81) \times 12.3 = 12669.6 j$	c
5.8	$W = m g (h_1 + h_2 + h_3 + h_4 + h_5 + h_6 + h_7 + h_8)$ $W = 1.8 \times 9.81 (0.0 + 0.046 + 0.092 + 0.138 + 0.184 + 0.230 + 0.276 + 0.322) = 22.74 j$	b
5.9	$W = \int_{x=0}^{x=0.50} F(x) dx = \int_{x=0}^{x=0.50} 120 x(x) dx = \left[\frac{120x^2}{2}\right] = 60(0.50)^2 = 15j$	b
5.10	\downarrow	c
5.11	\downarrow	e
5.12	\downarrow	c
5.13	\downarrow	b
5.14	\downarrow	a
5.15	\downarrow	
5.16	$m g h = \frac{1}{2} m v^2 \quad v = \sqrt{2 g h}$	

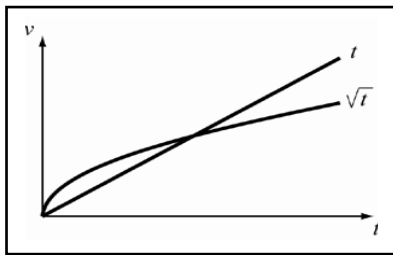
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5.17	$\Delta V_A \Delta V_B \leftarrow \frac{1}{2} m v_1^2 - \frac{1}{2} m v_2^2 \rightarrow \frac{1}{2} m v_1^2 - \frac{1}{2} m v_2^2 = \frac{1}{2} m (v_1^2 - v_2^2) = \frac{1}{2} m (v_1 - v_2)(v_1 + v_2) = \frac{1}{2} m (v_1 - v_2) \frac{v_1 + v_2}{2} = \frac{1}{4} m (v_1 - v_2)(v_1 + v_2)$
5.18	$\frac{\frac{1}{2} m (v_2^2 - v_1^2)}{\frac{1}{2} m (v_2^2 - v_1^2)} = \frac{F d_1}{F d_2} \quad \frac{(0.0 - v_1^2)}{(0.0 - (2v_1)^2)} = \frac{v_1^2}{4v_1^2} = \frac{d_1}{d_2} \quad \therefore d_2 = 4d_1$
5.19	$K_a = \frac{1}{2} m v^2 = 0.5 \times 10.0 \times (30.0)^2 = 4500 = 4.50 \times 10^3 \text{ j}$ $K_b = \frac{1}{2} m v^2 = 0.5 \times 0.100 \times (60.0)^2 = 180 = 1.80 \times 10^2 \text{ j}$ $K_a = \frac{1}{2} m v^2 = 0.5 \times 0.020 \times (300)^2 = 900 = 9.00 \times 10^2 \text{ j}$
5.20	$K = \frac{1}{2} m v^2 = 0.5 \times 1900 \times \left(\frac{100 \times 1000}{3600}\right)^2 = 733.24.7 = 7.33 \times 10^5 \text{ j}$
5.21	$K_{\text{XIII}} = 2 \times \left(\frac{1}{2} m v^2\right) = 7000 \times \left(\frac{90.0 \times 1000}{3600}\right)^2 = 4375000 = 4.38 \times 10^6 \text{ j}$
5.22	$K_1 = \frac{1}{2} m v^2 = 0.5 \times 1500 \times (15.0)^2 = 168750 = 1.69 \times 10^5 \text{ j}$ $K_2 = \frac{1}{2} m v^2 = 0.5 \times 1500 \times (30.0)^2 = 675000 = 6.75 \times 10^5 \text{ j}$ $K_2 = 4 K_1 \quad \text{if : } v_2 = 2v_1$
5.23	$v = \sqrt{\frac{2K}{m}} = \sqrt{\frac{2.0 \times 14400}{200}} = 12.0 \text{ m/s}$
5.24	$K_1 = \frac{1}{2} K_2 \quad \frac{1}{2} 2m v_1^2 = \frac{1}{2} \left(\frac{1}{2} m v_2^2\right) \quad \therefore v_1^2 = \frac{1}{4} v_2^2$ $K_1' = K_2' \quad \therefore \frac{1}{2} 2m (v_1 + 5.0)^2 = \frac{1}{2} m (v_2 + 5.0)^2$ $(v_1 + 5.0)^2 = \frac{1}{2} (v_2 + 5.0)^2 \quad \therefore v_1 + 5.0 = \frac{1}{\sqrt{2}} \times (v_2 + 5.0)$ $v_1 + 5.0 = \frac{1}{\sqrt{2}} \times ((2v_1) + 5.0)$ $\sqrt{2}v_1 + 5.0\sqrt{2} = 2v_1 + 5.0 \quad \therefore v_1 = \frac{5.0 - 5.0\sqrt{2}}{\sqrt{2} - 2.0} = 3.5 \text{ m/s}$ $v_2 = 2v_1 = 2 \times 2.54 = 7.1 \text{ m/s}$
5.25	$K_{top} = \frac{1}{2} m v^2 = 0.5 \times 20.1 \times (27.3 \cos 46.9)^2 = 3496.88 = 3.5 \times 10^3 \text{ j}$
5.26	$W = F r \cos \alpha = 12.0 \times 5.00 \cos 0.00 = 60.0 \text{ j}$
5.27	$v_{1y} = \sqrt{0.0 - 2.0 \times 9.81 \times (-7.25)} = 11.93 \text{ m/s}$

	$v_{1f} = \sqrt{(28.4)^2 + (-11.93)^2} = 30.8 \text{ m/s}$ $v_{2f} = \sqrt{(28.4)^2 - 2.0 \times 9.81 \times (-7.25)} = 30.8 \text{ m/s}$
5.28	$W_{ext} = -W_k = -F_k r \cos \alpha = -180. \times 4.00 \times \cos 180 = 720 \text{ j}$
5.29	$W = F r \cos \alpha = m g h = 2.00 \times 9.81 \times 0.400 = 7.85 \text{ j}$
5.30	$W_p = F_p r \cos \alpha = 200.0 \times 4.00 \cos 0.00 = 800.0 \text{ j}$ $W_k = F_k r \cos \alpha = 150.0 \times 4.00 \cos 180 = -600.0 \text{ j}$ $W_{net} = F_{net} r \cos \alpha = (200.0 - 150.0) \times 4.00 \cos 0.00 = 200.0 \text{ j}$
5.31	$W = F r \cos \alpha = 25.0 \times 25.0 \cos 30.0 = 541 \text{ j}$
5.32	$h = (3.0) - (3.0 \cos 33.6) = 0.501 \text{ m}$ $W = K - K_o \quad \therefore m g h = \frac{1}{2} m v^2$ $v = \sqrt{2 g h} = \sqrt{2 \times 9.81 \times 0.501} = 3.14 \text{ m/s}$
5.33	$W = \sum F r = (4.79 \times 4.25) - (3.79 \times 3.69) - (2.09 \times 2.45) = 1.25 \text{ j}$
5.34	$h_1 = (3.50) - (3.50 \cos 35.0) = 0.633 \text{ m}$ $h_2 = (3.50) - (3.50 \cos 15.0) = 0.119 \text{ m}$ $W = K - K_o \quad \therefore m g h = \frac{1}{2} m v^2$ $v = \sqrt{2 g h} = \sqrt{2 \times 9.81 \times (0.633 - 0.119)} = 3.17 \text{ m/s}$
5.35	$a = \frac{v_f^2 - v_i^2}{2 \Delta x} = \frac{13.7^2 - 0.0}{2 \times 24.4} = 3.85 \text{ m/s}^2$ $a = \frac{m g \sin \theta - F_K}{m} = \frac{m g \sin \theta - \mu_K m g \cos \theta}{m} = g \sin \theta - \mu_K g \cos \theta$ $\mu_K = \frac{g \sin \theta - a}{g \cos \theta} = \frac{9.81 \sin 30 - 3.85}{9.81 \cos 30} = 0.124$
5.36	$E = m g h \quad \therefore h = \frac{E}{m g} = \frac{6.2 \times 10^{-21}}{(4.7 \times 10^{-26})(9.81)} = 13446.98 \text{ m}$ $\frac{h}{R_E} = \frac{13446.98}{6.38 \times 10^6} \times 100 = 0.211\%$ $v_o = \sqrt{\frac{2K_o}{m}} = \sqrt{\frac{2 \times 6.2 \times 10^{-21}}{4.7 \times 10^{-26}}} = 513.6 \text{ m/s}$

5.37	$\frac{1}{2} m (v_f^2 - v_i^2)_1 = F_k r = \frac{1}{2} m (v_f^2 - v_i^2)_2$ $(v_f^2 - v_i^2)_1 = (v_f^2 - v_i^2)_2 \quad \therefore (130^2 - 153^2)_1 = (v_f^2 - 92^2)_2$ $v_{2f} = \sqrt{(130^2 - 153^2) + (92^2)} = 44 \text{ m/s}$
5.38	$W = \int_{0.0}^{4.0} F(x) dx = \int_{0.0}^{4.0} (3.00 + 0.500x) dx$ $W = \int_{0.0}^{4.0} (3.00 + 0.500x) dx = 3.00x + \frac{0.500x^2}{2}$ $W = (3.00 \times 4.0) + \frac{0.500 \times 4.0^2}{2} = 16.0 \text{ j}$
5.39	$W = \int_{0.730}^{1.35} F(x) dx = \int_{0.730}^{1.35} (-kx^4) dx$ $W = \int_{0.730}^{1.35} \left[\frac{-kx^5}{5} \right] = \left[\frac{(-20.3 \times 1.35^5)}{5} \right] - \left[\frac{(-20.3 \times 0.730^5)}{5} \right] = -17.4 \text{ j}$
3.40	$W = \Delta K = 0.0$ $P = \frac{W}{t} = 0.0 \quad \therefore P = \vec{F} \cdot \vec{v} = m \vec{a} \cdot \vec{v} = 0.0$ $\vec{a} \cdot \vec{v} = 0.0$
5.41	$W = \int_{2.00}^{6.00} F(x) dx = \int_{2.00}^{6.00} (5x^3) dx$ $W = \left[\frac{5x^4}{4} \right]_{2.00}^{6.00} = \left[\frac{5 \times 6.0^4}{4} \right] - \left[\frac{5 \times 2.0^4}{4} \right] = 1600 \text{ j}$ $W = \frac{1}{2} m v_f^2 - \frac{1}{2} m v_i^2 = \frac{1}{2} \times 1.00 (v_f^2 - (2.0)^2) = 1600$ $v_f = \sqrt{2 \times 1600 + 4.0} = 56.6 \text{ m/s}$
5.42	$W_s = -\frac{1}{2} k x^2 \quad \therefore x = \sqrt{\frac{2W}{k}} = \sqrt{\frac{2 \times 25.0}{440.}} = 0.337 \text{ m} = 33.7 \text{ cm}$
5.43	$W_s = -\frac{1}{2} k x^2 \quad \therefore k = -\frac{2W}{x^2} = -\frac{2 \times (-30.0)}{0.05^2} = 24000 = 2.4 \times 10^4 \text{ N/m}$
5.44	$\frac{W_1}{W_2} = \frac{(-\frac{1}{2} k x^2)_1}{(-\frac{1}{2} k x^2)_2} = 1$
5.45	$\frac{1}{2} k x^2 = \frac{1}{2} m v^2 \quad \therefore v = \sqrt{\frac{k x^2}{m}} = \sqrt{\frac{238.5 \times 0.231^2}{0.0413}} = 17.6 \text{ m/s}$
5.46	$P = F v = \mu_k m g v = 0.195 \times 202.3 \times 9.81 \times 1.785 = 690.77 \text{ W}$

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5.47	$P = F v = \mu_k m g v \quad \therefore v = \frac{P}{\mu_k m g} = \frac{1.060 \times 746}{0.115 \times 204.7 \times 9.81} = 3.4 \text{ m/s}$
5.48	$P = F v = (6.00 \times 10^3) \times 12.0 = \frac{72000 \text{ W}}{746} = 96.5 \text{ hp}$
5.49	$P = \frac{K - K_0}{\Delta t} = \frac{\frac{1}{2} m (v_f^2 - v_i^2)}{\Delta t} = \frac{\frac{1}{2} \times 1214.5 (0.0^2 - 27.9^2)}{0.236} = 2.0 \times 10^6 \text{ W}$
5.50	$P = F v \quad \therefore F = \frac{P}{v} = \frac{40.0 \times 746}{15.0} = 1989.3 \cong 1990 \text{ N}$
5.51	$P = \frac{K - K_0}{\Delta t} = \frac{\frac{1}{2} m (v_f^2 - v_i^2)}{\Delta t} = \frac{\frac{1}{2} \times 942.4 (v_f^2 - 0.0^2)}{4.55} = 140.5 \times 746 \text{ W}$ $v = \sqrt{\frac{2 \times 4.55 \times 140.5 \times 746}{942.4}} = 31.8 \text{ m/s}$
5.52	$P = 2 m g \sin \theta \quad v = 2 \times 75 \times 9.81 \times (\sin 7.0) \times 5.0 = 896.65 \cong 0.9 \text{ kW}$
5.53	$W = F_D r = (0.500 \times 8.90^2) \times 840.5 = 33288 \cong 3.33 \times 10^4 \text{ J}$
5.54	$P = \frac{K - K_0}{\Delta t} = \frac{\frac{1}{2} m (v_f^2 - v_i^2)}{\Delta t}$ $\therefore v_1 = \sqrt{\frac{2 P \Delta t}{m}} = \sqrt{\frac{2 P}{m}} \times \sqrt{t}$ $v_2 = a t$  $x = \int_0^t v dt \quad x_1 = \sqrt{\frac{2 P}{m_1}} \int_0^t t^{1/2} dt = \sqrt{\frac{2 P}{m_1}} \left(\frac{2}{3}\right) t^{3/2}$ $x_2 = a \int_0^t t dt = \frac{1}{2} a t^2 \quad \therefore x_0 = x_1 = x_2 \quad \therefore \sqrt{\frac{2 P}{m_1}} \left(\frac{2}{3}\right) t^{3/2} = \frac{1}{2} a t^2$ $\therefore \sqrt{\frac{2 P}{m_1}} \left(\frac{4}{3a}\right) = t^{1/2} \quad \therefore t = \frac{2 P}{m_1} \left(\frac{4}{3a}\right)^2 = \frac{32 P}{9 m_1 a}$ $x_0 = x_2 = \frac{1}{2} a t^2 = \frac{1}{2} a \left(\frac{32 P}{9 m_1 a}\right)^2 = \frac{512 P^2}{81 m_1^2 a^3}$ $P = \sqrt{\frac{81 m_1^2 a^3 x_0}{512}} = m_1 \sqrt{\frac{81 a^3 x_0}{512}} = 1000 \sqrt{\frac{81 \times 12^3 \times 402}{512}} = \frac{331507 \text{ W}}{746} = 444 \text{ hp}$
5.55	$W = m g h = 472.5 \times 9.81 \times 1.967 = 9117.48 \cong 9.12 \text{ kJ}$
5.56	$W = m g h = 6.00 \times 9.81 \times 0.200 = 11.8 \text{ J}$

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5.57	$P = F v = (14.0 \times 10^3) \times 3.00 = \frac{42000 W}{746} = 56.3 hp$
5.58	$P = \frac{\frac{1}{2}m(v_f^2 - v_i^2)}{\Delta t} = \frac{\frac{1}{2} \times 7.30(14.0^2 - 0.0^2)}{2.00} = 357.7 \cong 360 W$
5.59	$P = \frac{\frac{1}{2}m(v_f^2 - v_i^2)}{\Delta t} = \frac{\frac{1}{2} \times 1200(25.0^2 - 0.0^2)}{8.00} = \frac{46875 W}{746} = 62.8 hp$
5.60	$W = \frac{1}{2} m(v_f^2 - v_i^2) = \frac{1}{2} \times 1250(0.0^2 - 29.2^2) = -532900j = -533Kj$
5.61	$W = \frac{1}{2} m(v_f^2 - v_i^2) = F r$ $v = \sqrt{\frac{2 F r}{m}} = \sqrt{\frac{2 \times 110 \times 0.780}{0.0880}} = 44.2 m/s$
5.62	$W = m g h = -3.40 \times 9.81 \times 0.470 = -15.676 = -16.0 j$ $P = F v = m g v = 3.40 \times 9.81 \times 0.270 = 9.00 W$
5.63	$\Delta x = \frac{1.35}{\sin 28} = 2.88 m$ $a = -g \sin \theta = -9.81 \sin 28 = -4.61 m/s^2$ $v_f^2 = v_i^2 + 2a \Delta x$ $\therefore v_i = \sqrt{2 \Delta x} = \sqrt{2 \times 4.61 \times 2.88} = 5.15 m/s$
5.64	$W = m g h$ $\therefore h = \frac{W}{m g} = \frac{115}{0.325 \times 9.81} = 36.1 m$
5.65	$W = F r$ $\therefore F = \frac{W}{r} = \frac{7.00 \times 10^4}{2.80 \times 10^3} = 25.0 N$
5.66	$W = \frac{1}{2} m(v_f^2 - v_i^2) = F_{air} r$ $\therefore F_{air} = \frac{\frac{1}{2}m(v_f^2 - v_i^2)}{r} = \frac{0.5 \times 0.250 \times \left[\left(\frac{90}{100} \times 26.4 \right)^2 - (26.4)^2 \right]}{15.0} = -1.103 N$
5.67	$a_{\text{min}} = \frac{\Delta v}{\Delta t} = \frac{25.3 - 0.0}{22.9} = 1.104 m/s^2$ $a_{\text{max}} = \frac{F_k}{m_{\text{كامل}}^{\text{كامل}}} = \frac{0.372 \times 1143.5 \times 9.81}{1143.5} = 3.649 m/s^2$ $W = \Delta K = \frac{1}{2} m(v_f^2 - v_i^2) = \frac{1}{2} \times 1143.5 \times (25.3^2 - 0.0) = 365971.5j = 366kj$
5.68	$P = F v = m a v = 1000 \times \frac{25.0 - 19.4}{6.00} \times 22.2 = 20720 W = 20.7KW$
5.69	$\sum F \cdot r = \frac{1}{2} m(v_f^2 - v_i^2)$ $[(300 + 300 \cos 40) - (200 \cos 30)] \times 100 = \frac{1}{2} \times 125(v_f^2 - 0.0)$

	$v_f = \sqrt{\frac{2 \times [(300 + 300 \cos 40) - (200 \cos 30)] \times 100}{125}} = 28.6 \text{ m/s}$
5.70	$F = m g \sin \theta = 1000.0 \times 9.81 \times \sin 5.00 = 854.99 \cong 855 \text{ N}$ $P = Fv = 855 \times 25.0 = 21374.9 \text{ W} = 21.0 \text{ KW}$
5.71	$m g h = \frac{1}{2} m (v_f^2 - v_i^2) \quad \therefore h = \frac{(v_f^2 - v_i^2)}{2g} = \frac{(3.0^2 - 0.0)}{2 \times 9.81} = 0.459 \text{ m}$ $\theta = \cos^{-1} \left(\frac{2.50 - 0.459}{2.50} \right) = 35.3$
5.72	$W = m g h = 65.0 \times 9.81 \times (3900 - 2200) = 1084005 \cong 1.1 \times 10^6 \text{ J}$ $P = \frac{W}{\Delta t} = \frac{1084005}{5.0 \times 60 \times 60} = 60.22 \text{ W}$ $E_{in} = \frac{E_{out}}{eff} = \frac{1084005}{0.15} = 7226700 \cong 7.2 \times 10^6 \text{ J}$
5.73	$W = \int_{0.810}^{1.39} F(x) dx = \int_{0.810}^{1.39} (-cx^3) dx$ $W = \int_{0.810}^{1.39} \left[\frac{-cx^4}{4} \right] = \left[\frac{(-19.1 \times 1.39^4)}{4} \right] - \left[\frac{(-19.1 \times 0.810^4)}{4} \right] = -15.77 \text{ J}$
5.74	$k = \frac{F}{x} = \frac{63.5}{0.0435} = 1459.77 \text{ N/m}$ $W = \frac{1}{2} k x_f^2 - \frac{1}{2} k x_i^2 = \frac{1}{2} \times \left(\frac{63.5}{0.0435} \right) \times (0.0815^2 - 0.0435^2) = 3.47 \text{ J}$
5.75	$P = Fv = (Kv^2) v = \left(\frac{1}{2} c_d A \rho \right) v^3$ $= 0.5 \times 0.333 \times 3.25 \times 1.15 \times (26.8) = \frac{11978.4 \text{ W}}{746} = 16.1 \text{ hp}$
5.76	$W = \int_{1.093}^{4.429} F(x) dx = \int_{1.093}^{4.429} (Ax^6) dx$ $\Delta K = W = \int_{1.093}^{4.429} \left[\frac{Ax^7}{7} \right] = \left[\frac{11.45 \times 4.429^7}{7} \right] - \left[\frac{11.45 \times 1.093^7}{7} \right] = 54679.3 \cong 5.47 \times 10^4 \text{ J}$
5.77	$W = \int_{1.105}^x F(x) dx = \int_{1.105}^x (Ax^6) dx$ $\Delta K = W = \int_{1.105}^x \left[\frac{Ax^7}{7} \right] = \left[\frac{13.75 x^7}{7} \right] - \left[\frac{13.75 \times 1.105^7}{7} \right] = 5.662 \times 10^3 \text{ J}$ $= \left[\frac{55}{28} x^7 \right] - [3.95] = 5.662 \times 10^3 \text{ J} \quad \therefore x = \sqrt[7]{\frac{[(5.662 \times 10^3) + 3.95] \times 28}{55}} = 3.121 \text{ m}$
5.78	$W = \int_{x_0}^{3.313} F(x) dx = \int_{x_0}^{3.313} (Ax^6) dx$

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	$\Delta K = W = \int_{x_0}^{3.313} \left[\frac{Ax^7}{7} \right] = \left[\frac{16.05 \times 3.313^7}{7} \right] - \left[\frac{16.05 \times x_0^7}{7} \right] = 5.662 \times 10^4 j$ $= [10044.47] - \left[\frac{321}{140} x_0^7 \right] = 5.662 \times 10^4 j$ $\therefore x = \sqrt[7]{(10044.47 - 5.662 \times 10^4) \times \frac{140}{321}} = -4.12 m$
5.79	$P = F v = \mu_k N v = \mu_k m g v = \frac{0.1337 \times 537.3 \times 9.81 \times 3.333}{746} = 3.14 hp$
5.80	$P = F v = \mu_k N v = \mu_k m g v \quad \therefore \mu_k = \frac{P}{m g v} = \frac{2.666 \times 746}{540.3 \times 9.81 \times 2.561} = 0.1465$
5.81	$P = F v = \mu_k N v = \mu_k m g v \quad \therefore m = \frac{P}{\mu_k g v} = \frac{3.182 \times 746}{0.1595 \times 9.81 \times 2.791} = 543.6 kg$
5.82	$\frac{1}{2} k x^2 = \mu_k m g d \quad \therefore d = \frac{k x^2}{2 \mu_k m g} = \frac{15.19 \times 0.2311^2}{2 \times 0.02221 \times 0.170 \times 9.81} = 10.95 m$ $x = 10.95115667 - 0.2311 = 10.72 m$
5.83	$\frac{1}{2} k x^2 = \mu_k m g d \quad \mu_k = \frac{k x^2}{2 m g d} = \frac{17.49 \times 0.2331^2}{2 \times 0.170 \times 9.81 \times 12.13} = 0.023$
5.84	$P = \frac{W}{\Delta t} = \frac{m g h}{\Delta t} = \frac{75.0 \times 9.81 \times 45.0}{52.0} = 636.7 W$
5.85	$P = \frac{W}{\Delta t} = \frac{m g h}{\Delta t} \quad \therefore \Delta t = \frac{m g h}{P} = \frac{75.0 \times 9.81 \times 45.0}{725} = 45.7 m$
5.86	$P = \frac{W}{\Delta t} = \frac{m g h}{\Delta t} \quad \therefore h = \frac{P \Delta t}{m g} = \frac{815 \times 52.0}{75.0 \times 9.81} = 57.6 m$
*** XXXXXXXXXX ***	

Edited by Abood