a) $6\sqrt{20} - 11\sqrt{180} + \sqrt{720} + \sqrt{1280} = -26\sqrt{5}$

b) $\left[\left(2\sqrt{180} + \sqrt{20} + 3\sqrt{320}\right) : 28\right]^{-1} = \frac{-14}{5\sqrt{5}}$

✓ c) $\left(\frac{2}{\sqrt{10}} + \frac{3}{\sqrt{40}}\right)^2 = \frac{49}{40}$

D) $\left(\sqrt{1+\sqrt{2}} - \sqrt{2}\right)^{-1} = (1+\sqrt{2})(\sqrt{1+\sqrt{2}} + \sqrt{2})$

E) $\left(\frac{\sqrt{12} - \sqrt{6}}{\sqrt{12} + \sqrt{6}}\right)^2 = 17 - 12\sqrt{2}$

6) $\frac{|4 - \sqrt{101} - 1\sqrt{10} - 21|}{\sqrt{40} - |0.75\,(-2)^3|} = -1$

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c) $\left(\frac{2}{\sqrt{10}}\right)^2 + 2\,\frac{2}{\sqrt{10}}\,\frac{3}{\sqrt{40}} + \frac{9}{40} = \frac{4}{10} + 2\cdot\frac{2}{\sqrt{10}}\cdot\frac{3}{\sqrt{10}\cdot 2}$

$\frac{9}{40} = \frac{4}{20} + 2\cdot\frac{2\cdot 6}{2\sqrt{10}\,20} + \frac{9}{40} = \frac{16 + 24 + 9}{40} = \frac{49}{40}$

a) $6\sqrt{4\cdot 5} - 11\sqrt{9\cdot 4\cdot 5} + \sqrt{9\cdot 16\cdot 5} + \sqrt{4\cdot 8^2\cdot 5} =$

$= 6\cdot 2\sqrt{5} - 11\cdot 3\cdot 2\sqrt{5} + 3\cdot 4\cdot\sqrt{5} + 2\cdot 8\cdot\sqrt{5} = -26\sqrt{5}$

c) $\left(\frac{2\sqrt{10}}{10} + \frac{3\cdot 2\sqrt{10}}{40}\right)^2 = \left(\frac{8\sqrt{10} + 6\sqrt{10}}{40}\right)^2 : \left(\frac{14\sqrt{10}}{40}\right)^2 =$

$= \left(\frac{7\sqrt{10}}{20}\right)^2 = \frac{490}{400} = \frac{49}{40}$

e) $\left(\frac{\sqrt{2}}{\sqrt{2}+6}\right)^2 = \frac{2}{(\sqrt{2}+6)^2} = \frac{2}{2 + 12\sqrt{2} + 36} = \frac{2}{38 + 12\sqrt{2}} = \frac{1}{19 + 6\sqrt{2}}$

d) $\left(\sqrt{1+\sqrt{2}} - \sqrt{2}\right)^{-1} = \frac{1}{\sqrt{1+\sqrt{2}} - \sqrt{2}} \cdot \frac{\sqrt{1+\sqrt{2}} + a\sqrt{2}}{\sqrt{1+\sqrt{2}} + \sqrt{2}} =$

$= \frac{\sqrt{1+\sqrt{2}} + \sqrt{2}}{1+\sqrt{2}-2} = \frac{\sqrt{1+\sqrt{2}}+\sqrt{2}}{\sqrt{2}-1} = \frac{(1+\sqrt{2})(\sqrt{1+\sqrt{2}}+\sqrt{2})}{2-1}$

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a) $\log_2 8 \cdot \log_2 \sqrt{8} - \log_2 0{,}25 \cdot \log_2 4 = \frac{17}{2}$

b) $\log_2\left(1 + \log_4 \sqrt{2} + \log_{\sqrt{2}} 4 - 1{,}25\right) = 2$

c) $\left(\left(\frac{1}{2}\cdot\frac{1}{3}\right)^{\frac{1}{2}}\right)^{\frac{1}{3}} : \left(\left(\frac{1}{2}\cdot 3^2\right)^{\frac{1}{3}}\right)^{\frac{1}{2}} = \frac{1}{\sqrt{3}}$

d) $\frac{\sin 30^\circ + \sin 70^\circ}{\cos 30^\circ + \cos 70^\circ} = \operatorname{tg} 70^\circ$

e) $\sin 40^\circ + \sin 80^\circ + \sin 120^\circ + \sin 160^\circ$

f) ~~cos~~ $\operatorname{ctg}^2 \frac{\pi}{10} + \cos^2 \frac{\pi}{10} + \sin^2 \frac{\pi}{10}$

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c) $\frac{\left(\frac{1}{6}\right)^{\frac{1}{6}} \cdot \sqrt[6]{\frac{2}{\cancel{36}\ 54}}}{\left(\frac{9}{2}\right)^{\frac{1}{6}}} = \sqrt[6]{\frac{1}{\cancel{18}\ 27}} = \frac{1}{\sqrt{3}}$

a) $3 \cdot \frac{3}{2} + 2 \cdot 2 = \frac{17}{2}$

b) $\log_2\left(1 + \frac{1}{4} + 4 - \frac{5}{4}\right) = \log_2(4) = 2$