

10-applied-1

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$\pi \cdot 200^3 \cdot 5 \rightarrow i$	1.25664E8
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$2 \cdot i \rightarrow ip$	2.51327E8
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$\frac{\pi}{2} \cdot \left( (202.5)^2 \cdot \frac{4 \cdot 202.5}{3 \cdot \pi} - (197.5)^2 \cdot \frac{4 \cdot 197.5}{3 \cdot \pi} \right) \rightarrow q$	400021.
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-----2	2
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$\frac{2 \cdot 200}{2 \cdot 5} + \frac{15 \cdot 1 \cdot 10^6}{i} \cdot 200$	63.8732
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$\frac{2 \cdot 200}{5}$	80
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$\frac{-20 \cdot 10^6}{ip} \cdot 200$	-15.9155
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$\frac{63.873241463784+80}{2} + \sqrt{\left( \frac{63.873241463784-80}{2} \right)^2 + (-15.91549430919)^2}$	89.778175
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$$\frac{63.873241463784+80}{2}-\sqrt{\left(\frac{63.873241463784-80}{2}\right)^2+(-15.91549430919)^2}$$
54.095067

$$\sqrt{\left(\frac{63.873241463784-80}{2}\right)^2+(-15.91549430919)^2}$$
17.841554

$$\frac{1}{2} \cdot \{ 89.778174597157, 54.095066866623 \}$$
{ 44.889087, 27.047533 }

$$\frac{\frac{1}{2} \cdot \tan^{-1}\left(\frac{-15.91549430919}{\frac{63.873241463784-80}{2}}\right) \cdot 180}{\pi}$$
31.565768

$$31.565768342868-45$$
-13.434232

$$-----3$$
-3

$$\frac{2 \cdot 200}{2 \cdot 5}$$
40

$$\frac{2 \cdot 200}{5}$$
80

$$\frac{-20 \cdot 10^6}{ip} \cdot 200 - \frac{15 \cdot 10^3 \cdot q}{i \cdot 2 \cdot 5} \quad -20.690391$$

$$\frac{40+80}{2} + \sqrt{\left(\frac{40-80}{2}\right)^2 + (-20.690391281546)^2} \quad 88.776593$$

$$\frac{40+80}{2} - \sqrt{\left(\frac{40-80}{2}\right)^2 + (-20.690391281546)^2} \quad 31.223407$$

$$\sqrt{\left(\frac{40-80}{2}\right)^2 + (-20.690391281546)^2} \quad 28.776593$$

$$\frac{1}{2} \cdot \{88.776592768837, 31.223407231163\} \quad \{44.388296, 15.611704\}$$

$$\frac{\frac{1}{2} \cdot \tan^{-1}\left(\frac{-20.690391281546}{\frac{40-80}{2}}\right) \cdot 180}{\pi} \quad 22.98602$$

$$22.986020289473 - 45 \quad -22.01398$$

14-material-1

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$\frac{500-10}{2} \rightarrow r$	245
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$\frac{\pi}{4} \cdot (500^2 - (500-10)^2) \rightarrow a$	$2475 \cdot \pi$
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$\frac{\pi}{64} \cdot (500^4 - (500-10)^4) \rightarrow i$	2.38172E8
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$i \cdot 2 \rightarrow ip$	4.76343E8
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-----2	2
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$\frac{5 \cdot r}{5} \rightarrow \sigma x$	245
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$\frac{-1200}{a} \rightarrow \sigma y$	-0.154332
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$\frac{200 \cdot r}{ip} \cdot 10^6 \rightarrow \tau xy$	102.867
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$\frac{\sigma x + \sigma y}{2} + \sqrt{\left(\frac{\sigma x - \sigma y}{2}\right)^2 + \tau xy^2} \rightarrow \sigma 1$	282.444
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$\frac{\sigma x + \sigma y}{2} - \sqrt{\left(\frac{\sigma x - \sigma y}{2}\right)^2 + \tau xy^2} \rightarrow \sigma 2$	-37.5984
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$\sqrt{\left(\frac{\sigma x - \sigma y}{2}\right)^2 + \tau xy^2}$	160.021
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$\frac{\sigma 1}{2}$	141.222
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$\frac{\sigma 2}{2}$	-18.7992
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$\frac{175}{160.021}$	1.09361
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